NASA SP-7064
(Suppl. 3)

NASA THESAURUS SUPPLEMENT

MARCH 1990

A four part cumulative
supplement to the 1988 edition
of the *NASA Thesaurus*.

National Aeronautics and
Space Administration
Office of Management
Scientific and Technical
Information Division
1990

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INTRODUCTION

Contents of the Supplement

The *NASA Thesaurus Supplement* is a cumulative update of the 1988 edition of the *NASA Thesaurus,* NASA SP-7064. Supplements are normally published every six months. Users should consult the online thesaurus for complete and up-to-date information.

Part 1 of the *Supplement* updates Volume 1 of the *1988 NASA Thesaurus,* the *Hierarchical Listing.* Complete hierarchies of all new terms are given. Changes in the hierarchies of terms are not included in order to control the size of the *Supplement.* New terms to this supplement are indicated by a bullet.

Part 2 updates Volume 2 of the *1988 NASA Thesaurus*, the *Access Vocabulary.* All new terms are listed in alphabetical order along with USE references (permuted forms of posting terms and other cross-references).

Part 3 is a list of supplemental definitions of *NASA Thesaurus* posting terms, updating Volume 3 of the *NASA Thesaurus.* New terms are indicated by a bullet.

Part 4 is a list of changes. Users requiring additional information should consult the *1988 NASA Thesaurus.* Comments about the *NASA Thesaurus* and the *Supplement* should be addressed to: Lexicographer, NASA Scientific and Technical Information Facility, P.O. Box 8757, BWI Airport, MD 21240.

Thesaurus Term Definitions

Publication of *NASA Thesaurus* definitions began with *Supplement 1* to the *1985 NASA Thesaurus.* Beginning with the 1988 edition, definitions were published as Volume 3 of the *NASA Thesaurus.* Succeeding *Supplements* will contain only new definitions added after the publication of the 1988 edition.

Definitions are given for most terms added since 1976 as well as for many earlier terms. Definitions of more common or general scientific terms are given a NASA slant if one exists. Certain terms are not defined as a matter of policy: common place names, chemical elements, specific models of computers, and non-technical terms. Other terms lack definitions because the *NASA Thesaurus* predates by a number of years the systematic effort to define terms. Nevertheless, definitions of older terms are continually being added.

The following data are provided for each definition: term in uppercase-lowercase form, definition *per se*, source, and year the term (not the definition) was added to the *NASA Thesaurus.* The NASA History Office is the authority for capitalization in satellite and spacecraft names.

Sources of Definitions

Definitions with no source given were constructed by lexicographers at the NASA Scientific and Technical Information (STI) Facility, who rely on the following sources for their information: experts in the field, literature searches from the NASA STI Database, and specialized references.

Definitions come from the following sources:

AGI. *Glossary of Geology,* 3rd edition. Alexandria, VA, American Geological Institute, 1987.

ASTM. *Compilation of ASTM Standard Definitions,* 6th edition. Philadelphia, PA, ASTM, 1986. Copyright, the American Society for Testing and Materials (ASTM). All rights reserved. Used with the permission of ASTM. Two ASTM sources are distinguished: standards are identified by an alphanumeric designation with no hyphen; committees are identified by an alphanumeric designation with a hyphen. The original definitions appeared in the *Annual Book of ASTM Standards.*

DOE. *Energy Data Base Subject Thesaurus* (DOE/TIC-7000-R7). Oak Ridge, TN, Department of Energy, 1987.

IEEE. *Standard Dictionary of Electrical and Electronics Terms,* Fourth ed., New York, NY, IEEE, 1988.

SP-7. *Dictionary of Technical Terms for Aerospace Use, NASA SP-7.* Washington, DC, NASA, 1965.

In some cases, definitions from these sources have been subjected to minor editorial alterations, for example, to make a definition agree in number with the NASA form of the term.

Retrospective Indexing

Since 1984 all new terms are retrospectively assigned to past database records using a method which combines automated search strategies and manual review.

Record updating usually takes place within three months following the addition of a new term to the *NASA Thesaurus* and covers the period from 1968 to date.

Boldfaced Terms in Definitions

With the third *NASA Thesaurus Supplement, NASA Thesaurus* terms that appear in the main text of a definition and are also defined separately are boldfaced. Such boldfaced terms, including previously defined terms will appear for the most part in the definitions part of the *Supplement.* A new program for computer aided editing of boldfacing uses NASA's existing Machine Aided Indexing (MAI) programs to identify variant forms of terms that can be regularized with NASA Thesaurus terminology and thus provide more extensive cross-referencing through boldfacing. This system of linkages facilitates the use of definitions as they are added and intertwines new definitions with previous material.

Standardized Geology Definitions Included

As noted earlier, *NASA Thesaurus* terms that have been defined in the third edition of the American Geological Institute's "Glossary of Geology" are now being added to *NASA Thesaurus Supplements.* The "Glossary of Geology" is a standardized and widely accepted authority in the field of geology terminology. As with previous sources such as ASTM, DOE, IEEE, and SP-7, editorial alterations are sometimes made primarily for plurality and now, with the aid of MAI, of term form for boldfacing.

TABLE OF CONTENTS

NASA THESAURUS SUPPLEMENT

PART 1
HIERARCHICAL LISTING

A

ACOUSTIC COUPLING
GS COUPLING
. **ACOUSTIC COUPLING**
RT ACOUSTIC ATTENUATION
ACOUSTIC EXCITATION
ACOUSTICS
ENERGY TRANSFER
SOUND WAVES
WAVE INTERACTION

• **ADVANCED LAUNCH SYSTEM (STS)**
UF ALS (LAUNCH SYSTEM)
GS TRANSPORTATION
. SPACE TRANSPORTATION
. . SPACE TRANSPORTATION SYSTEM
. . . **ADVANCED LAUNCH SYSTEM (STS)**
RT HEAVY LIFT LAUNCH VEHICLES
LAUNCH VEHICLE CONFIGURATIONS
LAUNCH VEHICLES
NASA PROGRAMS
NASA SPACE PROGRAMS
PAYLOAD DELIVERY (STS)
REUSABLE LAUNCH VEHICLES
SHUTTLE DERIVED VEHICLES
SPACE SHUTTLES
SPACECRAFT DESIGN

• **ADVANCED SOLID ROCKET MOTOR (STS)**
UF ASRM (STS)
GS ENGINES
. ROCKET ENGINES
. . BOOSTER ROCKET ENGINES
. . . SPACE SHUTTLE BOOSTERS
. . . . **ADVANCED SOLID ROCKET MOTOR (STS)**
. . SOLID PROPELLANT ROCKET ENGINES
. . . SPACE SHUTTLE BOOSTERS
. . . . **ADVANCED SOLID ROCKET MOTOR (STS)**
RT SPACE SHUTTLE ASCENT STAGE
SPACE TRANSPORTATION SYSTEM

ADVANCED VERY HIGH RESOLUTION RADIOMETER
UF AVHRR
GS MEASURING INSTRUMENTS
. SATELLITE-BORNE INSTRUMENTS
. . **ADVANCED VERY HIGH RESOLUTION RADIOMETER**
RT NOAA 6 SATELLITE
NOAA 7 SATELLITE
NOAA 8 SATELLITE
REMOTE SENSORS
TIROS N SERIES SATELLITES

• **ALS (LAUNCH SYSTEM)**
USE ADVANCED LAUNCH SYSTEM (STS)

ANTIGUA AND BARBUDA
GS LANDFORMS
. ISLANDS
. . WEST INDIES
. . . **ANTIGUA AND BARBUDA**
NATIONS
. **ANTIGUA AND BARBUDA**
RT CARIBBEAN REGION

APPLICATION SPECIFIC INTEGRATED CIRCUITS
UF ASIC
CUSTOM INTEGRATED CIRCUITS
GS CIRCUITS
. INTEGRATED CIRCUITS
. . **APPLICATION SPECIFIC INTEGRATED CIRCUITS**

APPLICATION SPECIFIC INTEGRATED-*(CONT.)*
RT CHIPS (ELECTRONICS)
LARGE SCALE INTEGRATION
VERY LARGE SCALE INTEGRATION

ARGENTINE SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . **ARGENTINE SPACE PROGRAM**
RT ARGENTINA

• **ARMS (ROBOTICS)**
USE ROBOT ARMS

ASIC
USE APPLICATION SPECIFIC INTEGRATED CIRCUITS

• **ASRM (STS)**
USE ADVANCED SOLID ROCKET MOTOR (STS)

ATMOSPHERIC GENERAL CIRCULATION MODELS
UF GENERAL CIRCULATION MODELS (ATMOSPHERIC)
GS MODELS
. ATMOSPHERIC MODELS
. . **ATMOSPHERIC GENERAL CIRCULATION MODELS**
RT ATMOSPHERIC CIRCULATION
ATMOSPHERIC GENERAL CIRCULATION EXPERIMENT
CLIMATOLOGY
LONG RANGE WEATHER FORECASTING
NUMERICAL WEATHER FORECASTING

ATMOSPHERIC SEEING
USE SEEING (ASTRONOMY)

AUSTRALIAN SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . **AUSTRALIAN SPACE PROGRAM**
RT AUSTRALIA

AVHRR
USE ADVANCED VERY HIGH RESOLUTION RADIOMETER

B

• **BEAMED POWER**
USE POWER BEAMING

BIRKELAND CURRENTS
GS ELECTRIC CURRENT
. FIELD ALIGNED CURRENTS
. . **BIRKELAND CURRENTS**
. IONOSPHERIC CURRENTS
. . **BIRKELAND CURRENTS**
ELECTRICITY
. ATMOSPHERIC ELECTRICITY
. . IONOSPHERIC CURRENTS
. . . **BIRKELAND CURRENTS**
RT AURORAL ELECTROJETS
AURORAL ZONES
ELECTROJETS
GEOMAGNETISM
IONOSPHERIC DISTURBANCES
MAGNETIC DISTURBANCES
MAGNETIC STORMS

BLAZARS
GS CELESTIAL BODIES
. **BLAZARS**

BLAZARS-*(CONT.)*
. . BL LACERTAE OBJECTS
RT ACCRETION DISKS
ACTIVE GALACTIC NUCLEI
ACTIVE GALAXIES
DISK GALAXIES
EXTRAGALACTIC RADIO SOURCES
INFRARED ASTRONOMY
QUASARS
RADIO GALAXIES
RADIO SOURCES (ASTRONOMY)
SEYFERT GALAXIES

• **BLOCK COPOLYMERS**
GS COPOLYMERS
. **BLOCK COPOLYMERS**
RT COPOLYMERIZATION
POLYBUTADIENE
∞ POLYMERS
POLYSTYRENE

• **BOUNDARY DETECTION (IMAGERY)**
USE EDGE DETECTION

BRAGG CELLS
GS MODULATORS
. **BRAGG CELLS**
RT ACOUSTO-OPTICS
AMPLITUDE MODULATION
CRYSTAL OPTICS
LIGHT BEAMS
LIGHT MODULATION
PHASE DEMODULATORS
PHASE MODULATION
ULTRASONIC LIGHT MODULATION

• **BREAKUP (SPACECRAFT)**
USE SPACECRAFT BREAKUP

BROWN DWARF STARS
GS CELESTIAL BODIES
. STARS
. . **BROWN DWARF STARS**
RT COMPANION STARS
COOL STARS
DWARF STARS
PROTOSTARS
STELLAR EVOLUTION

• **BURAN SPACE SHUTTLE**
GS MANNED SPACECRAFT
. SPACE SHUTTLES
. . **BURAN SPACE SHUTTLE**
REENTRY VEHICLES
. RECOVERABLE SPACECRAFT
. . REUSABLE SPACECRAFT
. . . SPACE SHUTTLES
. . . . **BURAN SPACE SHUTTLE**
SOFT LANDING SPACECRAFT
. **BURAN SPACE SHUTTLE**
SOVIET SPACECRAFT
. **BURAN SPACE SHUTTLE**
RT AEROSPACE PLANES
U.S.S.R. SPACE PROGRAM

C

C (PROGRAMMING LANGUAGE)
GS LANGUAGES
. PROGRAMMING LANGUAGES
. . HIGH LEVEL LANGUAGES
. . . **C (PROGRAMMING LANGUAGE)**
RT COMPILERS
COMPUTER PROGRAMMING
EXPERT SYSTEMS

CAMBRIAN PERIOD
GS PALEOZOIC ERA
. **CAMBRIAN PERIOD**
RT GEOCHRONOLOGY
PALEONTOLOGY
PRECAMBRIAN PERIOD

CASSINI MISSION
GS SPACE MISSIONS
. **CASSINI MISSION**
RT EUROPEAN SPACE AGENCY
EUROPEAN SPACE PROGRAMS
INTERNATIONAL COOPERATION
MARINER MARK 2 SPACECRAFT
∞ MISSIONS
NASA SPACE PROGRAMS
SATURN (PLANET)
SPACE EXPLORATION
SPACE PROBES
TITAN

CENOZOIC ERA
GS **CENOZOIC ERA**
. TERTIARY PERIOD
RT CRETACEOUS-TERTIARY BOUNDARY
EXTINCTION
GEOCHRONOLOGY
PALEONTOLOGY

CENTRAL BULGE (GALAXIES)
USE GALACTIC BULGE

CHAOS
RT BRANCHING (MATHEMATICS)
MATHEMATICAL MODELS
NONLINEAR SYSTEMS
PERIOD DOUBLING
STOCHASTIC PROCESSES
STRANGE ATTRACTORS

• CLUSTER MISSION
GS SPACE MISSIONS
. **CLUSTER MISSION**
RT EARTH MAGNETOSPHERE
EUROPEAN SPACE PROGRAMS
INTERNATIONAL COOPERATION
∞ MISSIONS
NASA SPACE PROGRAMS
SCIENTIFIC SATELLITES
SOHO MISSION
SOLAR TERRESTRIAL INTERACTIONS
SOLAR WIND
SPACE PLASMAS

COD (CRACKS)
USE CRACK OPENING DISPLACEMENT

COMET RENDEZVOUS ASTEROID FLYBY MISSION
UF CRAF MISSION
GS SPACE MISSIONS
. FLYBY MISSIONS
. . ASTEROID MISSIONS
. . . **COMET RENDEZVOUS ASTEROID FLYBY MISSION**
RT MARINER MARK 2 SPACECRAFT
∞ MISSIONS
NASA SPACE PROGRAMS

COMETARY MAGNETOSPHERES
RT COMETARY ATMOSPHERES
COMETS
∞ MAGNETOSPHERES

COMMUTER AIRCRAFT
GS PASSENGER AIRCRAFT
. **COMMUTER AIRCRAFT**
RT AIR TRANSPORTATION
∞ AIRCRAFT
COMMERCIAL AIRCRAFT
GENERAL AVIATION AIRCRAFT

COMPACT GALAXIES
GS CELESTIAL BODIES
. GALAXIES
. . **COMPACT GALAXIES**
RT GALACTIC STRUCTURE

COMPUTATIONAL GEOMETRY
GS COMPUTATION
. **COMPUTATIONAL GEOMETRY**
GEOMETRY
. **COMPUTATIONAL GEOMETRY**
RT COMPUTER AIDED DESIGN

COMPUTER VIRUSES
RT COMPUTER INFORMATION SECURITY
COMPUTER PROGRAM INTEGRITY
COMPUTER PROGRAMMING
COMPUTER PROGRAMS
COMPUTER SYSTEMS PROGRAMS
SOFTWARE ENGINEERING

• CONDUCTING POLYMERS
GS CONDUCTORS
. ELECTRIC CONDUCTORS
. . **CONDUCTING POLYMERS**
RT ORGANIC SEMICONDUCTORS
POLYACETYLENE
POLYMERIC FILMS
∞ POLYMERS
SEMICONDUCTORS (MATERIALS)

CRACK OPENING DISPLACEMENT
UF COD (CRACKS)
GS DISPLACEMENT
. **CRACK OPENING DISPLACEMENT**
RT CRACK PROPAGATION
CRACKING (FRACTURING)
CRACKS
FRACTURE MECHANICS
FRACTURE STRENGTH
FRACTURES (MATERIALS)
FRACTURING
GAPS
NOTCH TESTS
NOTCHES
VOIDS

CRAF MISSION
USE COMET RENDEZVOUS ASTEROID FLYBY MISSION

CRETACEOUS PERIOD
GS MESOZOIC ERA
. **CRETACEOUS PERIOD**
RT CRETACEOUS-TERTIARY BOUNDARY
GEOCHRONOLOGY
PALEONTOLOGY
TERTIARY PERIOD

CRETACEOUS-TERTIARY BOUNDARY
UF K-T BOUNDARY
RT CENOZOIC ERA
CRETACEOUS PERIOD
EXTINCTION
GEOCHRONOLOGY
MESOZOIC ERA
PALEOBIOLOGY
PALEONTOLOGY
TERTIARY PERIOD

CUSTOM INTEGRATED CIRCUITS
USE APPLICATION SPECIFIC INTEGRATED CIRCUITS

• CYTOMETRY
UF CYTOPHOTOMETRY
RT CELLS (BIOLOGY)
CYTOLOGY
MICROSCOPY

• CYTOPHOTOMETRY
USE CYTOMETRY

CZECHOSLOVAKIAN SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . EUROPEAN SPACE PROGRAMS
. . . **CZECHOSLOVAKIAN SPACE PROGRAM**
RT CZECHOSLOVAKIA

D

DISK OPERATING SYSTEM (DOS)
GS COMPUTER PROGRAMS
. COMPUTER SYSTEMS PROGRAMS
. . OPERATING SYSTEMS (COMPUTERS)
. . . **DISK OPERATING SYSTEM (DOS)**
RT ASSEMBLER ROUTINES
COMPILERS
COMPUTER INFORMATION SECURITY
COMPUTER SYSTEMS DESIGN
∞ DISKS

DISK OPERATING SYSTEM (DOS)-*(CONT.)*
INPUT/OUTPUT ROUTINES
MAGNETIC DISKS
∞ ROUTINES
∞ SYSTEMS

DJIBOUTI
GS NATIONS
. **DJIBOUTI**
RT AFRICA

E

ECHELLE GRATINGS
GS GRATINGS (SPECTRA)
. **ECHELLE GRATINGS**
RT DIFFRACTION
ECHELETTE GRATINGS
REFLECTION

• EDGE DETECTION
UF BOUNDARY DETECTION (IMAGERY)
GS DETECTION
. **EDGE DETECTION**
RT COMPUTER VISION
IMAGE ANALYSIS
IMAGE PROCESSING
PATTERN RECOGNITION
SCENE ANALYSIS

∞ • EFFECTORS
SN *(USE OF A MORE SPECIFIC TERM IS RECOMMENDED--CONSULT THE TERMS LISTED BELOW)*
RT ACTUATORS
CONTROL EQUIPMENT
END EFFECTORS
MANIPULATORS

ELECTROMAGNETIC COUPLING
GS COUPLING
. **ELECTROMAGNETIC COUPLING**
. . MICROWAVE COUPLING
. . OPTICAL COUPLING
RT ELECTROMAGNETIC INTERACTIONS
LASER PLASMA INTERACTIONS
MAGNETOSPHERE-IONOSPHERE COUPLING
PLASMA-ELECTROMAGNETIC INTERACTION

ELECTRON-POSITRON PAIRS
GS PARTICLES
. ELEMENTARY PARTICLES
. . **ELECTRON-POSITRON PAIRS**
RT ANNIHILATION REACTIONS
CHARGED PARTICLES
ELECTRON-POSITRON PLASMAS
ELECTRONS
PAIR PRODUCTION
POSITRON ANNIHILATION
POSITRONS

ELECTRON-POSITRON PLASMAS
GS PARTICLES
. CHARGED PARTICLES
. . ENERGETIC PARTICLES
. . . PLASMAS (PHYSICS)
. . . . **ELECTRON-POSITRON PLASMAS**
RT ELECTRON PLASMA
ELECTRON-POSITRON PAIRS
ELECTRONS
POSITRONS
RELATIVISTIC PLASMAS

• ELLIPSOMETRY
RT DIMENSIONAL MEASUREMENT
ELLIPSOMETERS
ELLIPTICITY
FILM THICKNESS MEASUREMENT
OPTICAL MEASUREMENT
POLARIZED LIGHT

ENDEAVOUR (ORBITER)
GS MANNED SPACECRAFT
. SPACE SHUTTLE ORBITERS
. . **ENDEAVOUR (ORBITER)**
REENTRY VEHICLES
. RECOVERABLE SPACECRAFT

ENDEAVOUR (ORBITER)-*(CONT.)*
. . REUSABLE SPACECRAFT
. . . SPACE SHUTTLE ORBITERS
. . . . **ENDEAVOUR (ORBITER)**
RT CHALLENGER (ORBITER)
∞ SPACECRAFT

F

FIELD ALIGNED CURRENTS
GS ELECTRIC CURRENT
. **FIELD ALIGNED CURRENTS**
. . BIRKELAND CURRENTS
RT AERONOMY
ATMOSPHERIC ELECTRICITY
EARTH IONOSPHERE
EARTH MAGNETOSPHERE
GEOELECTRICITY
GEOMAGNETIC TAIL
GEOMAGNETISM
GEOPHYSICS
IONOSPHERIC CURRENTS
LINES OF FORCE
MAGNETIC FIELD RECONNECTION
PLASMA CURRENTS
TELLURIC CURRENTS
UPPER ATMOSPHERE

FLUX TRANSFER EVENTS
GS MAGNETIC PROPERTIES
. MAGNETOACTIVITY
. . **FLUX TRANSFER EVENTS**
RT AERONOMY
GEOMAGNETISM
INTERPLANETARY MAGNETIC FIELDS
LINES OF FORCE
MAGNETIC EFFECTS
MAGNETIC FIELD CONFIGURATIONS
MAGNETIC FIELD RECONNECTION
MAGNETIC FIELDS
MAGNETIC FLUX
MAGNETOPAUSE
MAGNETOSPHERE-IONOSPHERE COUPLING
SPACE PLASMAS

G

GALACTIC BULGE
UF CENTRAL BULGE (GALAXIES)
NUCLEAR BULGE (GALAXIES)
RT GALACTIC NUCLEI
GALACTIC STRUCTURE
GALAXIES
MILKY WAY GALAXY
SPIRAL GALAXIES
X RAY SOURCES

GALAXY INTERACTION
USE INTERACTING GALAXIES

GENERAL CIRCULATION MODELS (ATMOSPHERIC)
USE ATMOSPHERIC GENERAL CIRCULATION MODELS

• GLOBAL WARMING
GS HEATING
. ATMOSPHERIC HEATING
. . **GLOBAL WARMING**
RT ATMOSPHERIC TEMPERATURE
CLIMATE CHANGE
GLOBAL AIR POLLUTION
GREENHOUSE EFFECT
STRATOSPHERIC WARMING

GRAUPEL
GS PRECIPITATION (METEOROLOGY)
. **GRAUPEL**
RT CLOUD GLACIATION
CLOUD PHYSICS
HAIL
HAILSTORMS
ICE FORMATION
ICE NUCLEI
SNOW

GRENADA
GS LANDFORMS
. ISLANDS
. . WEST INDIES
. . . **GRENADA**
NATIONS
. **GRENADA**
RT CARIBBEAN REGION

GRID GENERATION (MATHEMATICS)
UF MESH GENERATION (MATHEMATICS)
RT COMPUTATIONAL FLUID DYNAMICS
COMPUTATIONAL GRIDS
COORDINATES
FINITE DIFFERENCE THEORY
FINITE ELEMENT METHOD
MULTIGRID METHODS

H

HAIRPIN VORTICES
USE HORSESHOE VORTICES

HELIOTRONS
GS NUCLEAR REACTORS
. FUSION REACTORS
. . **HELIOTRONS**
RT PLASMA CONTROL
STELLARATORS

HOLES (MECHANICS)
RT CAVITIES
HOLE DISTRIBUTION (MECHANICS)
HOLE GEOMETRY (MECHANICS)
∞ HOLES
PERFORATED PLATES
PERFORATED SHELLS
PERFORATION

HORIZONTAL POLARIZED SHEAR WAVES
USE SH WAVES

HORIZONTALLY POLARIZED SHEAR WAVES
USE SH WAVES

HORSESHOE VORTICES
UF HAIRPIN VORTICES
GS VORTICES
. **HORSESHOE VORTICES**
RT ABRIKOSOV THEORY
FLOW DISTORTION
FLOW GEOMETRY
VORTEX FILAMENTS
VORTEX GENERATORS
VORTEX RINGS
VORTICITY
WAKES
WING TIP VORTICES

HUNGARIAN SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . **HUNGARIAN SPACE PROGRAM**
RT HUNGARY

I

ICE CLOUDS
GS CLOUDS (METEOROLOGY)
. **ICE CLOUDS**
RT CLOUD GLACIATION
∞ CLOUDS
ICE

• INFRARED CIRRUS (ASTRONOMY)
RT ∞ CLOUDS
COSMIC DUST
GALACTIC RADIATION
INFRARED ASTRONOMY
INFRARED RADIATION
INFRARED SOURCES (ASTRONOMY)
INTERSTELLAR MATTER
MOLECULAR CLOUDS

INTERACTING GALAXIES
UF GALAXY INTERACTION
GS CELESTIAL BODIES
. GALAXIES

INTERACTING GALAXIES-*(CONT.)*
. . **INTERACTING GALAXIES**
RT GALACTIC STRUCTURE
INTERACTIONS
STELLAR SYSTEMS

ISRAELI SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . **ISRAELI SPACE PROGRAM**
RT ISRAEL

K

K-EPSILON TURBULENCE MODEL
UF KAPPA-EPSILON TURBULENCE MODEL
GS MODELS
. MATHEMATICAL MODELS
. . TURBULENCE MODELS
. . . **K-EPSILON TURBULENCE MODEL**
RT CLOSURE LAW
COMPUTATIONAL FLUID DYNAMICS
FLOW EQUATIONS
TURBULENT BOUNDARY LAYER
TURBULENT FLOW

K-T BOUNDARY
USE CRETACEOUS-TERTIARY BOUNDARY

KAPPA-EPSILON TURBULENCE MODEL
USE K-EPSILON TURBULENCE MODEL

KNOWLEDGE BASES (ARTIFICIAL INTELLIGENCE)
RT ARTIFICIAL INTELLIGENCE
DATA BASES
EXPERT SYSTEMS
KNOWLEDGE REPRESENTATION

L

LARGE DEPLOYABLE REFLECTOR
UF LDR (TELESCOPE)
GS ARTIFICIAL SATELLITES
. SCIENTIFIC SATELLITES
. . ASTRONOMICAL SATELLITES
. . . **LARGE DEPLOYABLE REFLECTOR**
OBSERVATORIES
. ASTRONOMICAL OBSERVATORIES
. . ASTRONOMICAL SATELLITES
. . . **LARGE DEPLOYABLE REFLECTOR**
TELESCOPES
. INFRARED TELESCOPES
. . **LARGE DEPLOYABLE REFLECTOR**
. REFLECTING TELESCOPES
. . **LARGE DEPLOYABLE REFLECTOR**
. SPACEBORNE TELESCOPES
. . **LARGE DEPLOYABLE REFLECTOR**
RT INFRARED ASTRONOMY
LARGE SPACE STRUCTURES
REFLECTORS
SPACE ERECTABLE STRUCTURES
SUBMILLIMETER WAVES

LASER BEAMS
SN (LIMITED TO THE TRANSMISSION AND INTERACTIONS OF LASER RADIATION; FOR THE QUANTITATIVE AND QUALITATIVE CHARACTERISTICS OF THE RADIATION PRODUCED BY A LASER USE 'LASER OUTPUTS')
UF LASER RADIATION
GS BEAMS (RADIATION)
. LIGHT BEAMS
. . **LASER BEAMS**
COHERENT RADIATION
. COHERENT ELECTROMAGNETIC RADIATION
. . **LASER BEAMS**
ELECTROMAGNETIC RADIATION
. COHERENT ELECTROMAGNETIC RADIATION
. . **LASER BEAMS**
. LIGHT BEAMS
. . **LASER BEAMS**

• LASER POWER BEAMING
UF POWER TRANSMISSION (LASERS)
GS POWER BEAMING

LASER POWER BEAMING-*(CONT.)*
. **LASER POWER BEAMING**
RT ENERGY CONVERSION
LASER PROPULSION
MICROWAVE POWER BEAMING
MICROWAVE TRANSMISSION
SATELLITE POWER TRANSMISSION
SPACECRAFT POWER SUPPLIES

LASER RADIATION
USE LASER BEAMS

LDR (TELESCOPE)
USE LARGE DEPLOYABLE REFLECTOR

LEARNING MACHINES
USE MACHINE LEARNING

LIGHT HELICOPTERS
GS LIGHT AIRCRAFT
. **LIGHT HELICOPTERS**
. . OH-4 HELICOPTER
. . OH-5 HELICOPTER
. . OH-6 HELICOPTER
. . OH-58 HELICOPTER
V/STOL AIRCRAFT
. ROTARY WING AIRCRAFT
. . HELICOPTERS
. . . **LIGHT HELICOPTERS**
. . . . OH-4 HELICOPTER
. . . . OH-5 HELICOPTER
. . . . OH-6 HELICOPTER
. . . . OH-58 HELICOPTER
RT ∞ AIRCRAFT
MILITARY HELICOPTERS
OBSERVATION AIRCRAFT

LIQUID OXYGEN HYDROCARBON ROCKET ENGINES
USE OXYGEN-HYDROCARBON ROCKET ENGINES

LOX-HYDROCARBON ROCKET ENGINES
USE OXYGEN-HYDROCARBON ROCKET ENGINES

LUXEMBOURG SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . EUROPEAN SPACE PROGRAMS
. . . **LUXEMBOURG SPACE PROGRAM**
RT LUXEMBOURG

M

MACHINE LEARNING
UF LEARNING MACHINES
GS AUTOMATIC CONTROL
. ADAPTIVE CONTROL
. . **MACHINE LEARNING**
RT ARTIFICIAL INTELLIGENCE
AUTOMATA THEORY
CYBERNETICS
FEEDBACK CONTROL
∞ MACHINERY
SELF ORGANIZING SYSTEMS
TEACHING MACHINES

MAN TENDED FREE FLYERS
UF MTFF (SPACE STATION)
GS MANNED SPACECRAFT
. **MAN TENDED FREE FLYERS**
SPACE PLATFORMS
. **MAN TENDED FREE FLYERS**
STATIONS
. SPACE STATIONS
. . **MAN TENDED FREE FLYERS**
RT COLUMBUS SPACE STATION
EUROPEAN SPACE PROGRAMS
HERMES MANNED SPACEPLANE
INTRAORBIT TRANSFER VEHICLES
ORBIT TRANSFER VEHICLES
ORBITAL SERVICING
RECOVERABLE SPACECRAFT
SPACE STATION PAYLOADS
SPACEBORNE EXPERIMENTS
SPACECRAFT MODULES

MARS ROVER SAMPLE RETURN MISSION
USE MARS SAMPLE RETURN MISSIONS

MARS SAMPLE RETURN MISSIONS
UF MARS ROVER SAMPLE RETURN MISSION
GS SPACE MISSIONS
. **MARS SAMPLE RETURN MISSIONS**
RT MARS (PLANET)
MARS LANDING
MARS PROBES
MARS SURFACE SAMPLES
NASA SPACE PROGRAMS
ROVING VEHICLES
SAMPLES
SPACE EXPLORATION

MASER MATERIALS
RT LASER MATERIALS
MASERS
∞ MATERIALS

MASER PUMPING
RT LASER PUMPING
MASER OUTPUTS
MASERS
OPTICAL PUMPING
∞ PUMPING

MASS DRIVERS
RT ∞ ACCELERATORS
ELECTROMAGNETIC ACCELERATION
ELECTROMAGNETIC PROPULSION
LAUNCHERS
MAGNETIC LEVITATION VEHICLES
MOON-EARTH TRAJECTORIES
PROPULSION
RAILGUN ACCELERATORS
SPACECRAFT PROPULSION

MASSIVELY PARALLEL PROCESSORS
UF MPP (COMPUTERS)
GS DATA PROCESSING EQUIPMENT
. COMPUTERS
. . DIGITAL COMPUTERS
. . . PARALLEL COMPUTERS
. . . . **MASSIVELY PARALLEL PROCESSORS**
RT ARCHITECTURE (COMPUTERS)
PARALLEL PROCESSING (COMPUTERS)

MATTER-ANTIMATTER PROPULSION
GS PROPULSION
. SPACECRAFT PROPULSION
. . **MATTER-ANTIMATTER PROPULSION**
RT ANNIHILATION REACTIONS
ANTIMATTER
INTERPLANETARY FLIGHT
INTERPLANETARY SPACECRAFT
INTERSTELLAR TRAVEL
NUCLEAR PROPULSION
POSITRON ANNIHILATION
ROCKET ENGINES

MAURITIUS
GS LANDFORMS
. ISLANDS
. . **MAURITIUS**
NATIONS
. **MAURITIUS**
RT AFRICA
INDIAN OCEAN

MESH GENERATION (MATHEMATICS)
USE GRID GENERATION (MATHEMATICS)

MESOZOIC ERA
GS **MESOZOIC ERA**
. CRETACEOUS PERIOD
RT CRETACEOUS-TERTIARY BOUNDARY
GEOCHRONOLOGY
PALEONTOLOGY
PALEOZOIC ERA

MEXICAN SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . **MEXICAN SPACE PROGRAM**
RT MEXICO

• MICROWAVE POWER BEAMING
UF POWER TRANSMISSION (MICROWAVE)
GS POWER BEAMING
. **MICROWAVE POWER BEAMING**
RT LASER POWER BEAMING
MICROWAVE TRANSMISSION
SATELLITE POWER TRANSMISSION

MICROWAVE POWER BEAMING-*(CONT.)*
SPACECRAFT POWER SUPPLIES

MICROWAVE SIGNATURES
GS SIGNATURES
. SPECTRAL SIGNATURES
. . **MICROWAVE SIGNATURES**
RT BACKSCATTERING
MICROWAVE EMISSION
MICROWAVE SCATTERING
MICROWAVES
RADAR SIGNATURES
SIGNATURE ANALYSIS

MIXING LAYERS (FLUIDS)
RT ADVECTION
ATMOSPHERIC BOUNDARY LAYER
ATMOSPHERIC STRATIFICATION
BOUNDARY LAYERS
CONVECTION
EKMAN LAYER
JET MIXING FLOW
LAMINAR MIXING
∞ LAYERS
MIXING
MIXING LENGTH FLOW THEORY
SHEAR LAYERS
TURBULENT BOUNDARY LAYER
TURBULENT MIXING
TWO FLUID MODELS

MOONLETS
GS CELESTIAL BODIES
. **MOONLETS**
RT JUPITER RINGS
NATURAL SATELLITES
PLANETARY RINGS
SATURN RINGS
URANUS RINGS

MPP (COMPUTERS)
USE MASSIVELY PARALLEL PROCESSORS

MTFF (SPACE STATION)
USE MAN TENDED FREE FLYERS

N

• NEPTUNE SATELLITES
GS CELESTIAL BODIES
. NATURAL SATELLITES
. . **NEPTUNE SATELLITES**
. . . NEREID
. . . TRITON

• NEREID
GS CELESTIAL BODIES
. NATURAL SATELLITES
. . NEPTUNE SATELLITES
. . . **NEREID**
RT NEPTUNE (PLANET)

NETHERLANDS SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . EUROPEAN SPACE PROGRAMS
. . . **NETHERLANDS SPACE PROGRAM**
RT ASTRONOMICAL NETHERLANDS SATELLITE
NETHERLANDS

NEW ZEALAND SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . **NEW ZEALAND SPACE PROGRAM**
RT NEW ZEALAND

• NORTHERN IRELAND
GS NATIONS
. UNITED KINGDOM
. . **NORTHERN IRELAND**
RT EUROPE

NUCLEAR ASTROPHYSICS
GS ASTROPHYSICS
. **NUCLEAR ASTROPHYSICS**
NUCLEAR PHYSICS
. **NUCLEAR ASTROPHYSICS**
RT COSMOLOGY
NUCLEAR PARTICLES

NUCLEAR ASTROPHYSICS-*(CONT.)*
STELLAR PHYSICS

NUCLEAR BULGE (GALAXIES)
USE GALACTIC BULGE

O

• OLIGOMERS
RT MONOMERS
POLYMERIZATION
∞ POLYMERS

OPTICAL MATERIALS
RT GLASS
INFRARED WINDOWS
LENSES
∞ MATERIALS
MIRRORS
OPTICAL FIBERS
WINDOWS (APERTURES)

• ORBITAL BREAKUP
USE SPACECRAFT BREAKUP

OXYGEN-HYDROCARBON ROCKET ENGINES
UF LIQUID OXYGEN HYDROCARBON ROCKET ENGINES
LOX-HYDROCARBON ROCKET ENGINES
GS ENGINES
. ROCKET ENGINES
. . LIQUID PROPELLANT ROCKET ENGINES
. . . **OXYGEN-HYDROCARBON ROCKET ENGINES**
RT BOOSTER ROCKET ENGINES
LIQUID OXYGEN
REUSABLE ROCKET ENGINES
SPACECRAFT PROPULSION

P

PALEOZOIC ERA
GS **PALEOZOIC ERA**
. CAMBRIAN PERIOD
RT GEOCHRONOLOGY
MESOZOIC ERA
PALEONTOLOGY
PRECAMBRIAN PERIOD

• PAN (POLYACRYLONITRILE)
USE POLYACRYLONITRILE

PECULIAR GALAXIES
GS CELESTIAL BODIES
. GALAXIES
. . **PECULIAR GALAXIES**

PHASE SEPARATION (MATERIALS)
RT BINARY SYSTEMS (MATERIALS)
LIQUID PHASES
MISCIBILITY GAP
PHASE DIAGRAMS
PHASE TRANSFORMATIONS
∞ SEPARATION
SOLID PHASES
SOLUBILITY

• POLYACRYLONITRILE
UF PAN (POLYACRYLONITRILE)
GS NITRILES
. ACRYLONITRILES
. . **POLYACRYLONITRILE**
RT ACRYLIC RESINS
CARBON FIBERS
∞ POLYMERS
SYNTHETIC FIBERS

• POLYBLENDS
USE POLYMER BLENDS

• POLYMER BLENDS
UF POLYBLENDS
GS MIXTURES
. **POLYMER BLENDS**
RT COPOLYMERS

POLYMER BLENDS-*(CONT.)*
POLYMER PHYSICS
∞ POLYMERS
THERMOPLASTIC RESINS

• POWER BEAMING
UF BEAMED POWER
GS **POWER BEAMING**
. LASER POWER BEAMING
. MICROWAVE POWER BEAMING
. SATELLITE POWER TRANSMISSION
RT ENERGY CONVERSION
LASER PROPULSION
MICROWAVE TRANSMISSION
POWER TRANSMISSION
SOLAR POWER SATELLITES
SPACECRAFT POWER SUPPLIES

• POWER TRANSMISSION (LASERS)
USE LASER POWER BEAMING

• POWER TRANSMISSION (MICROWAVE)
USE MICROWAVE POWER BEAMING

PROPELLER NOISE
GS ELASTIC WAVES
. SOUND WAVES
. . NOISE (SOUND)
. . . AERODYNAMIC NOISE
. . . . **PROPELLER NOISE**
. . . AIRCRAFT NOISE
. . . . **PROPELLER NOISE**
RT ACOUSTIC RETROFITTING
AEROACOUSTICS
BLADE SLAP NOISE
ENGINE NOISE
MUFFLERS
NOISE INTENSITY
NOISE MEASUREMENT
NOISE PREDICTION (AIRCRAFT)
NOISE REDUCTION
SOUND FIELDS
SOUND TRANSMISSION

PROTEIN CRYSTAL GROWTH
GS GROWTH
. CRYSTAL GROWTH
. . **PROTEIN CRYSTAL GROWTH**
RT PROTEIN SYNTHESIS
PROTEINS
SPACE PROCESSING

PULSAR MAGNETOSPHERES
GS STELLAR MAGNETOSPHERES
. **PULSAR MAGNETOSPHERES**
RT MAGNETIC FIELDS
∞ MAGNETOSPHERES
PULSARS
STELLAR ATMOSPHERES
STELLAR MAGNETIC FIELDS

Q

QATAR
GS NATIONS
. **QATAR**
RT ASIA

R

• RECORDS MANAGEMENT
GS MANAGEMENT
. INFORMATION MANAGEMENT
. . **RECORDS MANAGEMENT**
RT DATA MANAGEMENT
INFORMATION SYSTEMS
MANAGEMENT INFORMATION SYSTEMS
RECORDS

• REENTRY BREAKUP
USE SPACECRAFT BREAKUP

RESONANT TUNNELING
RT BARRIER LAYERS
ELECTRON TUNNELING

RESONANT TUNNELING-*(CONT.)*
NEGATIVE RESISTANCE DEVICES
QUANTUM ELECTRONICS
QUANTUM WELLS
TRANSISTORS
TUNNEL DIODES
∞ TUNNELING

RHODAMINE
GS DYES
. **RHODAMINE**
ORGANIC COMPOUNDS
. CYCLIC COMPOUNDS
. . **RHODAMINE**
RT AMINES
DYE LASERS
FLUORESCENCE
LASER MATERIALS

RIBLETS
GS GROOVES
. V GROOVES
. . **RIBLETS**
RT BOUNDARY LAYER CONTROL
DRAG REDUCTION
FRICTION DRAG
SHEAR LAYERS
SKIN FRICTION
STRIATION
TURBULENT BOUNDARY LAYER
VORTEX ALLEVIATION

RING GALAXIES
GS CELESTIAL BODIES
. GALAXIES
. . **RING GALAXIES**
RT GALACTIC STRUCTURE

• ROBOT ARMS
UF ARMS (ROBOTICS)
RT END EFFECTORS
MANIPULATORS
ROBOT DYNAMICS
ROBOTICS
ROBOTS

• ROBOT DYNAMICS
UF ROBOT MOTION
RT DYNAMIC CONTROL
∞ DYNAMICS
END EFFECTORS
MANIPULATORS
ROBOT ARMS
ROBOTICS

• ROBOT MOTION
USE ROBOT DYNAMICS

• ROBOT SENSORS
RT COMPUTER VISION
ROBOTICS
ROBOTS
∞ SENSORS

ROTATIONAL SPECTRA
GS SPECTRA
. MOLECULAR SPECTRA
. . **ROTATIONAL SPECTRA**
RT ABSORPTION SPECTRA
LINE SPECTRA
MOLECULAR EXCITATION
MOLECULAR ROTATION
MOLECULAR SPECTROSCOPY
VIBRATIONAL SPECTRA

ROTOR DYNAMICS
UF ROTORDYNAMICS
RT DYNAMIC CHARACTERISTICS
DYNAMIC RESPONSE
DYNAMIC STABILITY
∞ DYNAMICS
ROTARY STABILITY
ROTARY WINGS
ROTOR AERODYNAMICS
ROTORS
STRUCTURAL VIBRATION
TURBOMACHINERY

ROTORDYNAMICS
USE ROTOR DYNAMICS

S

• SATELLITE BREAKUP
USE SPACECRAFT BREAKUP

• SATELLITE FRAGMENTATION
USE SPACECRAFT BREAKUP

• SATELLITE POWER TRANSMISSION
GS POWER BEAMING
. **SATELLITE POWER TRANSMISSION**
RT LASER POWER BEAMING
MICROWAVE POWER BEAMING
RECTENNAS
SOLAR ARRAYS
SOLAR CELLS
SOLAR POWER SATELLITES

SCANNING TUNNELING MICROSCOPY
GS MICROSCOPY
. ELECTRON MICROSCOPY
. . **SCANNING TUNNELING MICROSCOPY**
RT ELECTRON MICROSCOPES
ELECTRON TUNNELING

SEEING (ASTRONOMY)
UF ATMOSPHERIC SEEING
RT ASTRONOMICAL OBSERVATORIES
ASTRONOMY
ATMOSPHERIC EFFECTS
ATMOSPHERIC OPTICS
ATMOSPHERIC TURBULENCE
OPTICAL CORRECTION PROCEDURE
SCINTILLATION
SPACE OBSERVATIONS (FROM EARTH)
TELESCOPES
TURBULENCE EFFECTS
VISUAL OBSERVATION

SEYCHELLES
GS LANDFORMS
. ISLANDS
. . **SEYCHELLES**
NATIONS
. **SEYCHELLES**
RT AFRICA
INDIAN OCEAN

SH WAVES
UF HORIZONTAL POLARIZED SHEAR WAVES
HORIZONTALLY POLARIZED SHEAR WAVES
GS ELASTIC WAVES
. S WAVES
. . **SH WAVES**
RT NONDESTRUCTIVE TESTS
SEISMIC WAVES
TRANSVERSE WAVES
ULTRASONIC TESTS
∞ WAVES

SHELL STARS
GS CELESTIAL BODIES
. STARS
. . PECULIAR STARS
. . . **SHELL STARS**
RT B STARS
STELLAR ENVELOPES

SINGLE INPUT SINGLE OUTPUT SYSTEMS
USE SISO (CONTROL SYSTEMS)

SIS (SUPERCONDUCTORS)
UF SUPERCONDUCTOR INSULATOR SUPERCONDUCTORS
GS ELECTRONIC EQUIPMENT
. SOLID STATE DEVICES
. . **SIS (SUPERCONDUCTORS)**
RT HIGH TEMPERATURE SUPERCONDUCTORS
JOSEPHSON JUNCTIONS
SQUID (DETECTORS)

SISO (CONTROL SYSTEMS)
UF SINGLE INPUT SINGLE OUTPUT SYSTEMS
RT ∞ CONTROL
CONTROL STABILITY
CONTROL SYSTEMS DESIGN
CONTROL THEORY
FEEDBACK CONTROL
∞ SYSTEMS
SYSTEMS STABILITY

• SOHO MISSION
UF SOLAR AND HELIOSPHERIC OBSERVATORY
GS SPACE MISSIONS
. **SOHO MISSION**
RT CLUSTER MISSION
ESA SATELLITES
EUROPEAN SPACE PROGRAMS
HELIOSPHERE
INTERNATIONAL COOPERATION
∞ MISSIONS
SCIENTIFIC SATELLITES
SOLAR CORONA
SOLAR INTERIOR
SOLAR OBSERVATORIES
SOLAR WIND

• SOLAR AND HELIOSPHERIC OBSERVATORY
USE SOHO MISSION

• SPACECRAFT BREAKUP
UF BREAKUP (SPACECRAFT)
ORBITAL BREAKUP
REENTRY BREAKUP
SATELLITE BREAKUP
SATELLITE FRAGMENTATION
RT ATMOSPHERIC ENTRY
DESTRUCTION
HAZARDS
METEOROID HAZARDS
ORBIT DECAY
REENTRY EFFECTS
SPACE DEBRIS
SPACECRAFT REENTRY
SPACECRAFT SURVIVABILITY
UNCONTROLLED REENTRY (SPACECRAFT)
WRECKAGE

SPACECRAFT ENVIRONMENTS
SN (LIMITED TO SPACECRAFT INTERNAL COMPARTMENTS AND CABINS; FOR SPACECRAFT EXTERNAL ENVIRONMENTS REFER TO 'EXTRATERRESTRIAL ENVIRONMENTS')
GS ENVIRONMENTS
. **SPACECRAFT ENVIRONMENTS**
RT AEROSPACE MEDICINE
ASTRONAUTS
BIOASTRONAUTICS
CLOSED ECOLOGICAL SYSTEMS
CONTROLLED ATMOSPHERES
COSMONAUTS
COUCHES
ENVIRONMENTAL CONTROL
EXOBIOLOGY
EXTRATERRESTRIAL ENVIRONMENTS
INTRAVEHICULAR ACTIVITY
LIFE SUPPORT SYSTEMS
ROTATING ENVIRONMENTS
SATELLITE TEMPERATURE
SPACE SIMULATORS
THERMAL ENVIRONMENTS
WEIGHTLESSNESS

SPANISH SPACE PROGRAM
GS PROGRAMS
. SPACE PROGRAMS
. . EUROPEAN SPACE PROGRAMS
. . . **SPANISH SPACE PROGRAM**
RT SPAIN

STARQUAKES
RT GAMMA RAY BURSTS
NEUTRON STARS
PULSARS
STARS
STELLAR ACTIVITY
STELLAR PHYSICS
STELLAR ROTATION
STELLAR STRUCTURE

STELLAR MAGNETOSPHERES
GS **STELLAR MAGNETOSPHERES**
. PULSAR MAGNETOSPHERES
RT MAGNETIC FIELDS
MAGNETOSPHERES
STELLAR ATMOSPHERES
STELLAR MAGNETIC FIELDS

STONY-IRON METEORITES
GS CELESTIAL BODIES
. METEORITES

STONY-IRON METEORITES-*(CONT.)*
. . **STONY-IRON METEORITES**
RT IRON METEORITES
STONY METEORITES

STRATOSPHERIC WARMING
GS HEATING
. ATMOSPHERIC HEATING
. . **STRATOSPHERIC WARMING**
RT ANOMALOUS TEMPERATURE ZONES
ATMOSPHERIC HEAT BUDGET
ATMOSPHERIC TEMPERATURE
CLIMATE CHANGE
GLOBAL WARMING
ISOTHERMAL LAYERS
STRATOSPHERE

• STRUCTURED PROGRAMMING
GS SOFTWARE ENGINEERING
. COMPUTER PROGRAMMING
. . **STRUCTURED PROGRAMMING**
RT DATA STRUCTURES
∞ PROGRAMMING

SUPERCONDUCTING FILMS
RT ∞ FILMS
SEMICONDUCTING FILMS
SUPERCONDUCTORS
THICK FILMS
THIN FILMS

SUPERCONDUCTOR INSULATOR SUPERCONDUCTORS
USE SIS (SUPERCONDUCTORS)

T

TERTIARY PERIOD
GS CENOZOIC ERA
. **TERTIARY PERIOD**
RT CRETACEOUS PERIOD
CRETACEOUS-TERTIARY BOUNDARY
GEOCHRONOLOGY
PALEONTOLOGY

THREE DIMENSIONAL MODELS
GS MODELS
. **THREE DIMENSIONAL MODELS**
RT COMPUTATIONAL GRIDS
COMPUTER AIDED DESIGN
COMPUTERIZED SIMULATION
MATHEMATICAL MODELS
TWO DIMENSIONAL MODELS

TOLLMIEN-SCHLICHTING WAVES
GS ELASTIC WAVES
. **TOLLMIEN-SCHLICHTING WAVES**
RT BLASIUS FLOW
BOUNDARY LAYER FLOW
BOUNDARY LAYER TRANSITION
LAMINAR FLOW
TURBULENT FLOW

TOMS
USE TOTAL OZONE MAPPING SPECTROMETER

TOTAL OZONE MAPPING SPECTROMETER
UF TOMS
GS MEASURING INSTRUMENTS
. OPTICAL MEASURING INSTRUMENTS
. . PHOTOMETERS
. . . ULTRAVIOLET SPECTROMETERS
. . . . **TOTAL OZONE MAPPING SPECTROMETER**
. RADIATION MEASURING INSTRUMENTS
. . ACTINOMETERS
. . . ULTRAVIOLET DETECTORS
. . . . ULTRAVIOLET SPECTROMETERS
. . . . . **TOTAL OZONE MAPPING SPECTROMETER**
. . PHOTOMETERS
. . . ULTRAVIOLET SPECTROMETERS
. . . . **TOTAL OZONE MAPPING SPECTROMETER**
. SATELLITE-BORNE INSTRUMENTS
. . **TOTAL OZONE MAPPING SPECTROMETER**
. SPECTROMETERS
. . ULTRAVIOLET SPECTROMETERS

TOTAL OZONE MAPPING-*(CONT.)*
. . . **TOTAL OZONE MAPPING SPECTROMETER**
OPTICAL EQUIPMENT
. OPTICAL MEASURING INSTRUMENTS
. . PHOTOMETERS
. . . ULTRAVIOLET SPECTROMETERS
. . . . **TOTAL OZONE MAPPING SPECTROMETER**
RT ANTARCTIC REGIONS
NIMBUS 7 SATELLITE
OZONE DEPLETION
OZONOMETRY

• **TOTAL VARIATION DIMINISHING SCHEMES**
USE TVD SCHEMES

• **TRANSITION FLIGHT**
RT AIRCRAFT MANEUVERS
∞ FLIGHT
HORIZONTAL FLIGHT
HOVERING
V/STOL AIRCRAFT
VERTICAL FLIGHT

• **TRANSPUTERS**
GS DATA PROCESSING EQUIPMENT
. COMPUTERS
. . **TRANSPUTERS**
RT ARCHITECTURE (COMPUTERS)
DISTRIBUTED PROCESSING
INTERPROCESSOR COMMUNICATION
MICROPROCESSORS
PARALLEL PROCESSING (COMPUTERS)

TRAPPED VORTICES
UF VORTEX TRAPS
GS VORTICES
. **TRAPPED VORTICES**
RT COUNTERFLOW
FLOW DISTRIBUTION
MIXING
ROTATING FLUIDS
ROTATING LIQUIDS
TURBULENT MIXING
TURBULENT WAKES
VORTEX RINGS
VORTICITY

TREND ANALYSIS
RT ∞ ANALYZING
FAILURE ANALYSIS
PERFORMANCE PREDICTION
PREDICTION ANALYSIS TECHNIQUES
RELIABILITY ANALYSIS
STATISTICAL ANALYSIS
TIME SERIES ANALYSIS
TRENDS

TRIPLE STARS
GS CELESTIAL BODIES
. STARS
. . **TRIPLE STARS**
RT BINARY STARS
COMPANION STARS
STELLAR SYSTEMS
THREE BODY PROBLEM

TURBULENCE MODELS
GS MODELS
. MATHEMATICAL MODELS
. . **TURBULENCE MODELS**
. . . K-EPSILON TURBULENCE MODEL
RT COMPUTATIONAL FLUID DYNAMICS
FLOW EQUATIONS
MIXING LENGTH FLOW THEORY
TURBULENT BOUNDARY LAYER
TURBULENT FLOW

• **TVD SCHEMES**
UF TOTAL VARIATION DIMINISHING SCHEMES
GS ANALYSIS (MATHEMATICS)
. NUMERICAL ANALYSIS
. . APPROXIMATION
. . . **TVD SCHEMES**
RT COMPUTATIONAL FLUID DYNAMICS
FINITE DIFFERENCE THEORY
FINITE VOLUME METHOD

TWO DIMENSIONAL MODELS
GS MODELS

TWO DIMENSIONAL MODELS-*(CONT.)*
. **TWO DIMENSIONAL MODELS**
RT COMPUTERIZED SIMULATION
MATHEMATICAL MODELS
THREE DIMENSIONAL MODELS

U

• **UARS (SATELLITE)**
USE UPPER ATMOSPHERE RESEARCH SATELLITE (UARS)

UNIX (OPERATING SYSTEM)
GS COMPUTER PROGRAMS
. COMPUTER SYSTEMS PROGRAMS
. . OPERATING SYSTEMS (COMPUTERS)
. . . **UNIX (OPERATING SYSTEM)**

• **UPPER ATMOSPHERE RESEARCH SATELLITE (UARS)**
UF UARS (SATELLITE)
GS ARTIFICIAL SATELLITES
. SCIENTIFIC SATELLITES
. . **UPPER ATMOSPHERE RESEARCH SATELLITE (UARS)**
RT UPPER ATMOSPHERE

UREILITES
GS CELESTIAL BODIES
. METEORITES
. . STONY METEORITES
. . . ACHONDRITES
. . . . **UREILITES**
. . . CARBONACEOUS METEORITES
. . . . **UREILITES**
RT METEORITIC DIAMONDS

V

VECTOR PROCESSING (COMPUTERS)
GS DATA PROCESSING
. **VECTOR PROCESSING (COMPUTERS)**
RT MULTIPROCESSING (COMPUTERS)
PARALLEL PROCESSING (COMPUTERS)
PIPELINING (COMPUTERS)

VECTOR QUANTIZATION
RT CODING
DATA COMPRESSION
DIGITAL TECHNIQUES
IMAGE PROCESSING
VECTORS (MATHEMATICS)
VOICE DATA PROCESSING

• **VIDEO TAPE RECORDERS**
GS RECORDING INSTRUMENTS
. **VIDEO TAPE RECORDERS**
TAPE RECORDERS
. **VIDEO TAPE RECORDERS**
VIDEO EQUIPMENT
. **VIDEO TAPE RECORDERS**
RT VIDEO TAPES

VIDEO TAPES
RT CINEMATOGRAPHY
∞ FILMS
INFORMATION
MAGNETIC TAPES
MOTION PICTURES
PHOTOGRAPHS
PHOTOGRAPHY
∞ TAPES
VIDEO TAPE RECORDERS
VISUAL AIDS

VORTEX TRAPS
USE TRAPPED VORTICES

W

• **WALES**
GS NATIONS
. UNITED KINGDOM

WALES-*(CONT.)*
. . **WALES**
RT EUROPE

WATER SPLITTING
RT ELECTROLYSIS
HYDROGEN PRODUCTION
SPLITTING

WHISPERING GALLERY MODES
GS MODES
. PROPAGATION MODES
. . **WHISPERING GALLERY MODES**
RT ACOUSTIC FREQUENCIES
ACOUSTIC PROPAGATION
ELECTROMAGNETIC RADIATION
ELECTROMAGNETIC WAVE TRANSMISSION
WAVE PROPAGATION
WAVELENGTHS

NASA THESAURUS SUPPLEMENT

PART 2
ACCESS VOCABULARY

A

acoustic coupling

Advanced Launch System (STS)

Advanced Solid Rocket Motor (STS)

Advanced Very High Resolution Radiometer

aircraft, commuter
USE commuter aircraft

aligned currents, field
USE field aligned currents

ALS (launch system)
USE Advanced Launch System (STS)

analysis, trend
USE trend analysis

Antigua and Barbuda

antimatter propulsion, matter-
USE matter-antimatter propulsion

application specific integrated circuits

Argentine space program

arms, robot
USE robot arms

arms (robotics)
USE robot arms

(artificial intelligence), knowledge bases
USE knowledge bases (artificial intelligence)

ASIC
USE application specific integrated circuits

ASRM (STS)
USE Advanced Solid Rocket Motor (STS)

Asteroid Flyby Mission, Comet Rendezvous
USE Comet Rendezvous Asteroid Flyby Mission

(astronomy), infrared cirrus
USE infrared cirrus (astronomy)

(astronomy), seeing
USE seeing (astronomy)

astrophysics, nuclear
USE nuclear astrophysics

Atmosphere Research Satellite (UARS), Upper
USE Upper Atmosphere Research Satellite (UARS)

atmospheric

(atmospheric), general circulation models
USE atmospheric

atmospheric seeing
USE seeing (astronomy)

Australian space program

AVHRR
USE Advanced Very High Resolution Radiometer

B

Barbuda, Antigua and
USE Antigua and Barbuda

bases (artificial intelligence), knowledge
USE knowledge bases (artificial intelligence)

beamed power
USE power beaming

beaming, laser power
USE laser power beaming

beaming, microwave power
USE microwave power beaming

beaming, power
USE power beaming

beams, laser
USE laser beams

Birkeland currents

blazars

blends, polymer
USE polymer blends

block copolymers

boundary, Cretaceous-Tertiary
USE Cretaceous-Tertiary boundary

boundary detection (imagery)
USE edge detection

boundary, K-T
USE Cretaceous-Tertiary boundary

Bragg cells

breakup, orbital
USE spacecraft breakup

breakup, reentry
USE spacecraft breakup

breakup, satellite
USE spacecraft breakup

breakup, spacecraft
USE spacecraft breakup

breakup (spacecraft)
USE spacecraft breakup

brown dwarf stars

bulge, galactic
USE galactic bulge

bulge (galaxies), central
USE galactic bulge

bulge (galaxies), nuclear
USE galactic bulge

Buran space shuttle

C

C (programming language)

Cambrian Period

Cassini mission

cells, Bragg
USE Bragg cells

Cenozoic Era

central bulge (galaxies)
USE galactic bulge

chaos

circuits, application specific integrated
USE application specific integrated circuits

circuits, custom integrated
USE application specific integrated circuits

circulation models (atmospheric), general
USE atmospheric

cirrus (astronomy), infrared
USE infrared cirrus (astronomy)

clouds, ice
USE ice clouds

Cluster Mission

COD (cracks)
USE crack opening displacement

Comet Rendezvous Asteroid Flyby Mission

cometary magnetospheres

commuter aircraft

compact galaxies

computational geometry

computer viruses

(computers), MPP
USE massively parallel processors

(computers), vector processing
USE vector processing (computers)

conducting polymers

(control systems), SISO
USE SISO (control systems)

copolymers, block
USE block copolymers

coupling, acoustic
USE acoustic coupling

coupling, electromagnetic
USE electromagnetic coupling

crack opening displacement

(cracks), COD
USE crack opening displacement

CRAF Mission
USE Comet Rendezvous Asteroid Flyby Mission

Cretaceous Period

Cretaceous-Tertiary boundary

crystal growth, protein
USE protein crystal growth

currents, Birkeland
USE Birkeland currents

currents, field aligned
USE field aligned currents

custom integrated circuits
USE application specific integrated circuits

cytometry

cytophotometry
USE cytometry

Czechoslovakian space program

D

Deployable Reflector, Large
USE Large Deployable Reflector

detection, edge
USE edge detection

detection (imagery), boundary
USE edge detection

dimensional models, three
USE three dimensional models

dimensional models, two
USE two dimensional models

diminishing schemes, total variation
USE TVD schemes

disk operating system (DOS)

displacement, crack opening
USE crack opening displacement

Djibouti

(DOS), disk operating system
USE disk operating system (DOS)

DOS (operating system), MS
USE disk operating system (DOS)

drivers, mass
USE mass drivers

dwarf stars, brown
USE brown dwarf stars

dynamics, robot
USE robot dynamics

dynamics, rotor
USE rotor dynamics

E

echelle gratings

edge detection

effectors

electromagnetic coupling

electron-positron pairs

electron-positron plasmas

ellipsometry

Endeavour (orbiter)

engines, liquid oxygen hydrocarbon rocket
USE oxygen-hydrocarbon rocket engines

engines, LOX-hydrocarbon rocket
USE oxygen-hydrocarbon rocket engines

engines, oxygen-hydrocarbon rocket
USE oxygen-hydrocarbon rocket engines

environments, spacecraft
USE spacecraft environments

epsilon turbulence model, k-
USE k-epsilon turbulence model

epsilon turbulence model, kappa-
USE k-epsilon turbulence model

Era, Cenozoic
USE Cenozoic Era

Era, Mesozoic
USE Mesozoic Era

Era, Paleozoic
USE Paleozoic Era

events, flux transfer
USE flux transfer events

F

field aligned currents

films, superconducting
USE superconducting films

flight, transition
USE transition flight

flight, transition
USE transition flight

(fluids), mixing layers
USE mixing layers (fluids)

flux transfer events

Flyby Mission, Comet Rendezvous Asteroid
USE Comet Rendezvous Asteroid Flyby Mission

flyers, man tended free
USE man tended free flyers

fragmentation, satellite
USE spacecraft breakup

free flyers, man tended
USE man tended free flyers

G

galactic bulge

(galaxies), central bulge
USE galactic bulge

galaxies, compact
USE compact galaxies

galaxies, interacting
USE interacting galaxies

(galaxies), nuclear bulge
USE galactic bulge

galaxies, peculiar
USE peculiar galaxies

galaxies, ring
USE ring galaxies

galaxy interaction
USE interacting galaxies

gallery modes, whispering
USE whispering gallery modes

general circulation models (atmospheric)
USE atmospheric

generation (mathematics), grid
USE grid generation (mathematics)

generation (mathematics), mesh
USE grid generation (mathematics)

geometry, computational
USE computational geometry

global warming

gratings, echelle
USE echelle gratings

graupel

Grenada

grid generation (mathematics)

growth, protein crystal
USE protein crystal growth

H

hairpin vortices
USE horseshoe vortices

helicopters, light
USE light helicopters

Heliospheric Observatory, Solar and
USE SOHO Mission

heliotrons

High Resolution Radiometer, Advanced Very
USE Advanced Very High Resolution Radiometer

holes (mechanics)

horizontal shear waves
USE SH waves

horizontally polarized shear waves
USE SH waves

horseshoe vortices

Hungarian space program

hydrocarbon rocket engines, liquid oxygen
USE oxygen-hydrocarbon rocket engines

hydrocarbon rocket engines, LOX-
USE oxygen-hydrocarbon rocket engines

hydrocarbon rocket engines, oxygen-
USE oxygen-hydrocarbon rocket engines

I

ice clouds

(imagery), boundary detection
USE edge detection

infrared cirrus (astronomy)

input single output systems, single
USE SISO (control systems)

insulator superconductors, superconductor
USE SIS (semiconductors)

integrated circuits, application specific
USE application specific integrated circuits

integrated circuits, custom
USE application specific integrated circuits

intelligence), knowledge bases (artificial
USE knowledge bases (artificial intelligence)

interacting galaxies

interaction, galaxy
USE interacting galaxies

Ireland, Northern
USE Northern Ireland

iron meteorites, stony-
USE stony-iron meteorites

Israeli space program

K

k-epsilon turbulence model

K-T boundary
USE Cretaceous-Tertiary boundary

kappa-epsilon turbulence model
USE k-epsilon turbulence model

knowledge bases (artificial intelligence)

L

language), C (programming
USE C (programming language)

Large Deployable Reflector

laser beams

laser power beaming

(lasers), power transmission
USE laser power beaming

(launch system), ALS
USE Advanced Launch System (STS)

Launch System (STS), Advanced
USE Advanced Launch System (STS)

layers (fluids), mixing
USE mixing layers (fluids)

LDR (telescope)
USE Large Deployable Reflector

learning, machine
USE machine learning

learning machines
USE machine learning

light helicopters

liquid oxygen hydrocarbon rocket engines
USE oxygen-hydrocarbon rocket engines

LOX-hydrocarbon rocket engines
USE oxygen-hydrocarbon rocket engines

Luxembourg space program

M

machine learning

machines, learning
USE machine learning

magnetospheres, cometary
USE cometary magnetospheres

magnetospheres, pulsar
USE pulsar magnetospheres

magnetospheres, stellar
USE stellar magnetospheres

man tended free flyers

management, records
USE records management

Mapping Spectrometer, Total Ozone
USE Total Ozone Mapping Spectrometer

Mars Rover Sample Return Mission
USE Mars sample return missions

Mars sample return missions

maser materials

maser pumping

mass drivers

massively parallel processors

materials, maser
USE maser materials

materials, optical
USE optical materials

(materials), phase separation
USE phase separation (materials)

(mathematics), grid generation
USE grid generation (mathematics)

(mathematics), mesh generation
USE grid generation (mathematics)

matter-antimatter propulsion

Mauritius

(mechanics), holes
USE holes (mechanics)

mesh generation (mathematics)
USE grid generation (mathematics)

Mesozoic Era

meteorites, stony-iron
USE stony-iron meteorites

methods, multigrid
USE multigrid methods

Mexican space program

microscopy, scanning tunneling
USE scanning tunneling microscopy

microwave power beaming

(microwave), power transmission
USE microwave power beaming

microwave signatures

mission, Cassini
USE Cassini mission

Mission, Cluster
USE Cluster Mission

Mission, Comet Rendezvous Asteroid Flyby
USE Comet Rendezvous Asteroid Flyby Mission

Mission, CRAF
USE Comet Rendezvous Asteroid Flyby Mission

Mission, Mars Rover Sample Return
USE Mars sample return missions

Mission, SOHO
USE SOHO Mission

missions, Mars sample return
USE Mars sample return missions

mixing layers (fluids)

model, k-epsilon turbulence
USE k-epsilon turbulence model

model, kappa-epsilon turbulence
USE k-epsilon turbulence model

models (atmospheric), general circulation
USE atmospheric

models, three dimensional
USE three dimensional models

models, turbulence
USE turbulence models

models, two dimensional
USE two dimensional models

modes, whispering gallery
USE whispering gallery modes

moonlets

motion, robot
USE robot dynamics

Motor (STS), Advanced Solid Rocket
USE Advanced Solid Rocket Motor (STS)

MPP (computers)
USE massively parallel processors

MS DOS (operating system)
USE disk operating system (DOS)

MTFF (space station)
USE man tended free flyers

multigrid methods

N

Neptune satellites

Nereid

Netherlands space program

New Zealand space program

noise, propeller
USE propeller noise

Northern Ireland

nuclear astrophysics

nuclear bulge (galaxies)
USE galactic bulge

O

Observatory, Solar and Heliospheric
USE SOHO Mission

oligomers

opening displacement, crack
USE crack opening displacement

operating system (DOS), disk
USE disk operating system (DOS)

(operating system), MS DOS
USE disk operating system (DOS)

(operating system), UNIX
USE UNIX (operating system)

optical materials

orbital breakup
USE spacecraft breakup

(orbiter), Endeavour
USE Endeavour (orbiter)

output systems, single input single
USE SISO (control systems)

oxygen hydrocarbon rocket engines, liquid
USE oxygen-hydrocarbon rocket engines

oxygen-hydrocarbon rocket engines

Ozone Mapping Spectrometer, Total
USE Total Ozone Mapping Spectrometer

P

pairs, electron-positron
USE electron-positron pairs

Pakistan space program

Paleozoic Era

PAN (polyacrylonitrile)
USE polyacrylonitrile

parallel processors, massively
USE massively parallel processors

peculiar galaxies

Period, Cambrian
USE Cambrian Period

Period, Cretaceous
USE *Cretaceous Period*

Period, Tertiary
USE Tertiary Period

phase separation (materials)

plasmas, electron-positron
USE electron-positron plasmas

polarized shear waves, horizontally
USE SH waves

polyacrylonitrile

(polyacrylonitrile), PAN
USE polyacrylonitrile

polyblends
USE polymer blends

polymer blends

polymers, conducting
USE conducting polymers

positron pairs, electron-
USE electron-positron pairs

positron plasmas, electron-
USE electron-positron plasmas

power, beamed
USE power beaming

power beaming

power beaming, laser
USE laser power beaming

power beaming, microwave
USE microwave power beaming

power transmission (lasers)
USE laser power beaming

power transmission (microwave)
USE microwave power beaming

power transmission, satellite
USE satellite power transmission

processing (computers), vector
USE *vector processing (computers)*

processors, massively parallel
USE massively parallel processors

program, Argentine space
USE Argentine space program

program, Australian space
USE Australian space program

program, Czechoslovakian space
USE Czechoslovakian space program

program, Hungarian space
USE Hungarian space program

program, Israeli space
USE Israeli space program

program, Luxembourg space
USE Luxembourg space program

program, Mexican space
USE Mexican space program

program, Netherlands space
USE Netherlands space program

program, New Zealand space
USE New Zealand space program

program, Pakistan space
USE Pakistan space program

program, Spanish space
USE Spanish space program

(programming language), C
USE C (programming language)

programming, structured
USE structured programming

propeller noise

propulsion, matter-antimatter
USE matter-antimatter propulsion

protein crystal growth

pulsar magnetospheres

pumping, maser
USE maser pumping

Q

Qatar

quakes, star
USE starquakes

quantization, vector
USE vector quantization

R

Radiometer, Advanced Very High Resolution
USE Advanced Very High Resolution Radiometer

recorders, video tape
USE video tape recorders

records management

reentry breakup
USE spacecraft breakup

Reflector, Large Deployable
USE Large Deployable Reflector

Rendezvous Asteroid Flyby Mission, Comet
USE Comet Rendezvous Asteroid Flyby Mission

Research Satellite (UARS), Upper Atmosphere
USE Upper Atmosphere Research Satellite (UARS)

Resolution Radiometer, Advanced Very High
USE Advanced Very High Resolution Radiometer

resonance tunneling
USE resonant tunneling

resonant tunneling

Return Mission, Mars Rover Sample
USE Mars sample return missions

return missions, Mars sample
USE Mars sample return missions

rhodamine

riblets

ring galaxies

robot arms

robot dynamics

robot motion
USE robot dynamics

robot sensors

(robotics), arms
USE robot arms

rocket engines, liquid oxygen hydrocarbon
USE oxygen-hydrocarbon rocket engines

rocket engines, LOX-hydrocarbon
USE oxygen-hydrocarbon rocket engines

rocket engines, oxygen-hydrocarbon
USE oxygen-hydrocarbon rocket engines

Rocket Motor (STS), Advanced Solid
USE Advanced Solid Rocket Motor (STS)

rotational spectra

rotor dynamics

rotordynamics
USE rotor dynamics

Rover Sample Return Mission, Mars
USE Mars sample return missions

S

Sample Return Mission, Mars Rover
USE Mars sample return missions

sample return missions, Mars
USE Mars sample return missions

satellite breakup
USE spacecraft breakup

satellite fragmentation
USE spacecraft breakup

satellite power transmission

(satellite), UARS
USE Upper Atmosphere Research Satellite (UARS)

Satellite (UARS), Upper Atmosphere Research
USE Upper Atmosphere Research Satellite (UARS)

satellites, Neptune
USE Neptune satellites

scanning tunneling microscopy

schemes, total variation diminishing
USE TVD schemes

schemes, TVD
USE TVD schemes

Schlichting waves, Tollmien-
USE Tollmien-Schlichting waves

seeing (astronomy)

seeing, atmospheric
USE seeing (astronomy)

(semiconductors), SIS
USE SIS (semiconductors)

sensors, robot
USE robot sensors

separation (materials), phase
USE phase separation (materials)

Seychelles

SH waves

shear waves, horizontal
USE SH waves

shear waves, horizontally polarized
USE SH waves

shell stars

shuttle, Buran space
USE Buran space shuttle

signatures, microwave
USE microwave signatures

single input single output systems
USE SISO (control systems)

single output systems, single input
USE SISO (control systems)

SIS (semiconductors)

SISO (control systems)

SOHO Mission

Solar and Heliospheric Observatory
USE SOHO Mission

Solid Rocket Motor (STS), Advanced
USE Advanced Solid Rocket Motor (STS)

space program, Argentine
USE Argentine space program

space program, Australian
USE Australian space program

space program, Czechoslovakian
USE Czechoslovakian space program

space program, Hungarian
USE Hungarian space program

space program, Israeli
USE Israeli space program

space program, Luxembourg
USE Luxembourg space program

space program, Mexican
USE Mexican space program

space program, Netherlands
USE Netherlands space program

space program, New Zealand
USE New Zealand space program

space program, Pakistan
USE Pakistan space program

space program, Spanish
USE Spanish space program

space shuttle, Buran
USE Buran space shuttle

(space station), MTFF
USE man tended free flyers

(spacecraft), breakup
USE spacecraft breakup

spacecraft breakup

spacecraft environments

Spanish space program

specific integrated circuits, application
USE application specific integrated circuits

spectra, rotational
USE rotational spectra

Spectrometer, Total Ozone Mapping
USE Total Ozone Mapping Spectrometer

splitting, water
USE water splitting

starquakes

stars, brown dwarf
USE brown dwarf stars

stars, shell
USE shell stars

stars, triple
USE triple stars

station), MTFF (space
USE man tended free flyers

stellar magnetospheres

stony-iron meteorites

stratospheric warming

structured programming

(STS), Advanced Launch System
USE Advanced Launch System (STS)

(STS), Advanced Solid Rocket Motor
USE Advanced Solid Rocket Motor (STS)

(STS), ASRM
USE Advanced Solid Rocket Motor (STS)

superconducting films

superconductor insulator superconductors
USE SIS (semiconductors)

superconductors, superconductor insulator
USE SIS (semiconductors)

system), ALS (launch
USE Advanced Launch System (STS)

system (DOS), disk operating
USE disk operating system (DOS)

system), MS DOS (operating
USE disk operating system (DOS)

System (STS), Advanced Launch
USE Advanced Launch System (STS)

system), UNIX (operating
USE UNIX (operating system)

systems, single input single output
USE SISO (control systems)

systems), SISO (control
USE SISO (control systems)

T

T boundary, K-
USE Cretaceous-Tertiary boundary

tape recorders, video
USE video tape recorders

tapes, video
USE video tapes

(telescope), LDR
USE Large Deployable Reflector

tended free flyers, man
USE man tended free flyers

Tertiary boundary, Cretaceous-
USE Cretaceous-Tertiary boundary

Tertiary Period

three dimensional models

Tollmien-Schlichting waves

TOMS
USE Total Ozone Mapping Spectrometer

Total Ozone Mapping Spectrometer

total variation diminishing schemes
USE TVD schemes

transfer events, flux
USE flux transfer events

transition flight
USE transition flight

transition flight

transmission (lasers), power
USE laser power beaming

transmission (microwave), power
USE microwave power beaming

transmission, satellite power
USE satellite power transmission

transputers

trapped vortices

traps, vortex
USE trapped vortices

trend analysis

triple stars

tunneling microscopy, scanning
USE scanning tunneling microscopy

tunneling, resonance
USE resonant tunneling

tunneling, resonant
USE resonant tunneling

turbulence model, k-epsilon
USE k-epsilon turbulence model

turbulence model, kappa-epsilon
USE k-epsilon turbulence model

turbulence models

TVD schemes

two dimensional models

U

UARS (satellite)
USE Upper Atmosphere Research Satellite (UARS)

(UARS), Upper Atmosphere Research Satellite
USE Upper Atmosphere Research Satellite (UARS)

UNIX (operating system)

Upper Atmosphere Research Satellite (UARS)

ureilites

V

variation diminishing schemes, total
USE TVD schemes

vector processing (computers)

vector quantization

Very High Resolution Radiometer, Advanced
USE Advanced Very High Resolution Radiometer

video tape recorders

video tapes

viruses, computer
USE computer viruses

vortex traps
USE trapped vortices

vortices, hairpin
USE horseshoe vortices

vortices, horseshoe
USE horseshoe vortices

vortices, trapped
USE trapped vortices

W

Wales

warming, global
USE global warming

warming, stratospheric
USE stratospheric warming

water splitting

waves, horizontal shear
USE SH waves

waves, horizontally polarized shear
USE SH waves

waves, SH
USE SH waves

waves, Tollmien-Schlichting
USE *Tollmien-Schlichting waves*

whispering gallery modes

Z

Zealand space program, New
USE New Zealand space program

NASA THESAURUS SUPPLEMENT

PART 3
DEFINITIONS

A

• **abundance**
The mean **concentration** of an element in a geochemical reservoir, e.g. the abundance of Ni in meteorites or the crustal abundance of oxygen. Also used for the for relative average content, e.g. the order of abundance of elements in the earth's crust is O, Si, AL, Fe, Ca, etc. Used for element abundance. *AGI 1968*

AC generators
Generators for the production of alternating-current power. Used for alternating current generators and alternators (generators). *IEEE 1968*

access control
Hardware or software features, operating procedures, or management procedures designed to permit authorized access to a computer system. *IEEE 1980*

• **adobe flats**
Use flats (landforms)

• **advancing shorelines**
Use beaches

air data systems
Sets of aerodynamic and thermodynamic **sensors**, and a computer which provide flight parameters such as airspeed, static pressure, air temperature and **Mach number**. *IEEE 1975*

• **air masses**
Large widespread volumes of **air** having particular characteristics of **temperature** and moisture content that were acquired at its source region and are modified as they move away from their source. *AGI 1968*

• **air pollution**
The presence of unwanted material in the **air**. The term 'unwanted material' here refers to material in sufficient concentrations, present for a sufficient **time**, and under circumstances to interfere significantly with comfort, health, or welfare of persons, or with the full use and enjoyment of property. Used for atmospheric impurities. *ASTM (D 1356, D-22) 1968*

Alfven waves
Use magnetohydrodynamic waves

• **algae**
Any plants of a group of unicellular and multicellular primitive organisms that include the **Chlorella**, Scenedesmus, and other genera. Used for algal bloom. *SP-7 1968*

• **algal bloom**
Use algae

• **alloys**
Substances having metallic properties and being composed of two or more chemical elements of which at least one is an elemental metal. *SP-7 1968*

alphanumeric characters
Characters in a set that contain both letters and digits, but they usually also contain other characters such as punctuation symbols. *IEEE 1968*

alternating current generators
Use AC generators

alternators (generators)
Use AC generators

anechoic chambers
Enclosures especially designed with boundaries that absorb sufficiently well the sound incident thereon to create an essentially field-free condition in the **frequency ranges** of interest. *IEEE 1968*

angels (radar)
Echos of false **radar targets** caused by atmospheric inhomogeneity, **atmospheric refraction**, insects, birds, or unknown phenomena. *IEEE 1968*

• **anodes**
The positive poles or **electrodes** of electron emitters, such as **electron tubes** or electric cells. *SP-7 1968*

• **Antarctic regions**
The areas surrounding and including the continent of Antarctica. Used for Antactica. *1968*

• **Antarctica**
Use Antarctic regions

• **anthracite**
Coal of the highest metamorphic rank, in which fixed-carbon content is between 92% and 98% (on a dry, mineral-matter-free basis). It is hard and black, and has a semimetallic **luster** and semiconchoidal fracture. Anthracite ignites with difficulty and burns with a short blue flame, without smoke. Used for hard coal. *AGI 1973*

antireflection coatings
Thin dielectric or metallic films applied to an optical surface to reduce the **reflectance** and thereby increase the **transmittance**. Note: The ideal value of the reactive index of a single layered film is the square root of the product of the refractive indices on either side of the film, the ideal **optical thickness** being one quarter of a wavelength. *IEEE 1973*

• **apatites**
Use minerals

apogees
Those orbital points farthest from the earth, when the earth is the center of attraction. *IEEE 1968*

• **aquatic plants**
Plants growing in or on **water**. *1981*

• **archipelagoes**
Seas or areas in seas that contain numerous **islands**; also the island groups themselves. *AGI 1973*

• **aspiration**
Use vacuum

• **astrophysics**
A branch of **astronomy** that treats of the physical properties of **celestial bodies**, such as luminosity, size, **mass**, density, **temperature**, and chemical composition. Used for geoastrophysics. *SP-7 1968*

• **atmospheric electricity**
Electrical phenomena, regarded collectively, which occur in the earth's atmosphere. Also the study of electrical processes occuring within the atmosphere. *SP-7 1968*

• **atmospheric impurities**
Use air pollution

• **atmospheric refraction**
Refraction resulting when a ray of radiant energy passes obliquely through an atmosphere. *SP-7 1968*

• **atmospheric windows**
Wavelength intervals at which the atmosphere transmits the most **electromagnetic radiation**. *AGI 1972*

• **atolls**
Coral **reefs** appearing in plan view as roughly circular (though sometimes elliptical or horseshoe-shaped), and surrmounted by a chain or ring of closely spaced low coral inlets that encircle a shallow lagoon in which there is no pre-existing land or **islands** of non coral origin; the **reefs** are surrounded by deep water of the open sea, either oceanic or **continental shelves**. Atolls range in diameter from 1 km to more than 130 km, and are especially common today in the western and central Pacific Ocean. Atoll is derived from the native name in the Maldive **Islands** (Indian Ocean) which are typical examples of this structure. *AGI 1973*

audiometry
The testing and **measurement** of hearing at various levels. *1968*

automatic pattern recognition
Use pattern recognition

• **azimuth**
Horizontal direction or bearing. Used for solar azimuth. *SP-7 1968*

B

backfire antennas
Antennas consisting of radiating feeds, reflector elements, and reflecting surfaces such that the **antennas** function as open **resonators**, with **radiation** from the open end of the resonator. *IEEE 1968*

backlobes
Radiation lobes whose axes make angles of approximately 180 degrees with respect to the axes of the major lobes of the **antennas**. By extension **radiation** lobes in the half-space opposed to the direction of peak activity. *IEEE 1968*

• **backshores**
Use beaches

• **badlands**
Intricately stream-dissected topography, characterized by a very fine drainage network with high drainage densities (77 to 747 miles per square mile) and short steep slopes with narrow interflues. Badlands develop on the surface with little or no vegetative cover, overlying unconsolidated or poorly cemented clays or silts, sometimes with soluable **minerals** such as **gypsum** or halite. They may also be induced in humid areas by removal of the vegetative cover through overgrazing, or by **air pollution** from sulfide smelting. The term was first applied to an area in western South Dakota, which was called 'mauvaises terres' by the early French fur traders. *AGI 1979*

• **bajadas**
Use fans (landforms)

• **barriers (landforms)**
Elongated offshore ridges or masses, usually of sand, rising above the high-tide level, generally extending parallel to, and at some distance from, the shore, and separated from it by some kind of coastal bay. They are built up by the action of waves and currents. *AGI 1972*

• **bars (landforms)**
A generic term for any of various elongate offshore ridges, banks, or mounds of sand, gravel, or other unconsolidated material, submerged at least at high **tides**, and built up by the action of waves or currents on the **water** bottom, especially at the mouth of a river or estuary, or at a slight distance from the beach. Bars commonly form obstructions to **water navigation**. *AGI 1973*

• **bayous**
A term variously applied to many local **water** features in the lower Mississippi River basin and in the Gulf Coast region of the U.S., especially in Louisiana. Its general meaning is a creek of a secondary **watercourse** that is tributary to another body of **water**; especially through alluvial lowlands, coastal swamps or river deltas. The origin of the term is from the American French 'boyau', 'gut'; from the Choctaw 'bayuk', 'small stream'. *AGI 1974*

• **bays (topographic features)**
Wide, curving open indentations, rececesses, or arms of seas or **lakes** into the land or between two capes or headlands; larger than coves, and usually smaller than, but of the same general character as gulfs. Used for bights and coves. *AGI 1968*

• **beaches**
Stretches of unconsolidated material that constitute gently sloping zones, typically with concave profiles, extending landward from the low-water line to the place where there is a definite change in material or physiographic form. Used for advancing shorelines, backshores, and inshore zones. *AGI 1968*

• **beacons**
Lights, groups of lights, electronic apparatus, or other devices that guide, orient, or warn aircraft, **spacecraft**, etc. in **flight**. *SP-7 1968*

• **bights**
Use bays (topographic features)

• **bioregenerative life support systems**
Use closed ecological systems

blazars
Strongly optical polarized active galactic nuclei objects exhibiting BL Lacertae-like and quasar-like characteristics. *1988*

• **bonding**
Specifically, a system of connections between all metal parts of an aircraft or other structure forming a continuous electrical unit and preventing jumping or arching of static electricity. Glueing or sementing together for structural strength. *SP-7 1968*

• **breakwaters**
Offshore structures (such as moles, walls, or jetties) that by breaking the **force** of waves, protect harbors, anchorages, **beaches**, or shore areas. Used for jetties and sea walls.
AGI 1973

C

• **cathodes**
In **electron tubes**, **electrodes** through which a primary stream of electrons enters the interelectrode space. *SP-7 1968*

• **celestial bodies**
Any aggregations of matter in space constituting a unit for astronomical study, as the **sun**, **moon**, a planet, comet, star, or nebula. Also called heavenly bodies. *SP-7 1968*

central processing units
The units of computing systems that include the **circuits** controlling the interpretation of instructions and their execution. Used for processors (computers). *IEEE 1969*

• **ceramics**
Inorganic compounds or mixtures requiring **heat treatment** to fuse them into homogeneous masses usually posessing high temperature strength but low ductility. Types and uses range from china for dishes to refractory liners for nozzles. *SP-7 1968*

• **Chlorella**
A genus of unicellular green algae to be adapted to converting carbon dioxide into oxygen in a closed ecological system.
SP-7 1968

• **circuits**
Networks providing one or more closed paths. Used for electric circuits, exploding conductor circuits, shunts, and subcircuits.
SP-7 1968

• **closed ecological systems**
Systems that provide for the maintenance of life in an isolated living chamber through complete reutilization of the material available, in particular, by means of a cycle wherein exhaled carbon dioxide, urine, and other waste matter are converted chemically or by **photosynthesis** into oxygen, **water**, and food. Used for bioregenerative life support systems. *SP-7 1968*

• **coal**
A brown to black combustable sedimentary rock (in the geological sense) composed principally of consolidated and chemically altered plant remains. *ASTM (D 2796, D-5) 1968*

COD (cracks)
Use crack opening displacement

cold cathode tubes
Electron tubes containing **cold cathodes**. *IEEE 1968*

• **cold cathodes**
Cathodes that function without the application of **heat**.
IEEE 1969

• **cols**
Use gaps (geology)

• **communication satellites**
Satellites designed to reflect or relay electromagnetic signals used for communication. *SP-7 1968*

• **compasses**
Instruments for indicating a horizontal reference direction, specifically magnetic compasses. *SP-7 1968*

• **continental margins**
Use continental shelves

• **continental shelves**
The ocean floor that is between the shoreline and the abyssal ocean floor, including various provinces; the continental shelf; continental borderland; continental slope; and the contiental rise. Used for continental margins. *DOE 1969*

• **coves**
Use bays (topographic features)

crack opening displacement
The **displacement** at the mouth of a crack in a material. Used for COD (cracks) *1988*

• **critical mach number**
Use Mach number

D

discharge tubes
Use gas discharge tubes

• **discontinuity**
A break in sequence or continuity of anything. *SP-7 1968*

• **discovering**
Use exploration

disk operating system (DOS)
A program with which the computer performs such mundane but useful tasks as storing, locating, and retrieving files on disk, reading the keyboard, and issuing display and print **information**. *1988*

• **displacement**
A vector quantity that specifies the change of position of a body the change of position of a body or particle usually measured from the mean position or position of rest. *SP-7 1968*

• **ditching (excavation)**
Use excavation

• **Doppler effect**
The change in frequency with which **energy** reaches a receiver when the receiver and the **energy** source are in **motion** relative to each other. Used for DOVAP and stellar Doppler shift.
SP-7 1968

Doppler radar
Radar which utilizes the **Doppler effect** to determine the radial component of velocities of relative **radar** targets or to select targets having particular radial velocities. *IEEE 1968*

• **DOVAP**
Use Doppler effect

• **drag**
A retarding **force** acting upon the direction of **motion** of the body. it is a component of the total fluid **force**s acting on the body. Used for drag effect. *SP-7 1968*

• **drag effect**
Use drag

• **dullness**
Use luster

E

• **earth figure**
Use geodesy

• **earth shape**
Use geodesy

• **eddies**
Use vortices

• **electric circuits**
Use circuits

electrical conductivity
Use electrical resistivity

electrical resistivity
A factor such that the conduction-current density is equal to the electric field in the material divided by resistivity. *IEEE 1968*

• **electroacoustic transducers**
Transducers for receiving waves from an electric system and delivering waves to an acoustic system, or vice versa. **Microphones** and **earphones** are electroacoustic **transducers**.
SP-7 1968

electroconductivity
Use electrical resistivity

• **electrodes**
Terminals at which electricity passes from one medium into another. The positive electrodes are called the **anodes**; the negative electrodes are called the **cathodes**. *SP-7 1968*

• **electromagnetic radiation**
Energy propagated through space or through material media in the form of an advancing disturbance in electric and **magnetic fields** existing in space or in media. The term **radiation**, alone, is used commonly for this type of **energy**, although it actually has a broader meaning. Used for electromagnetic waves and wave radiation. *SP-7 1968*

• **electromagnetic waves**
Use electromagnetic radiation

• **electron tubes**
Devices in which conduction by electrons takes place through a **vacuum** of gaseous medium within a gastight envelope.
SP-7 1968

• **element abundance**
Use abundance

energy dissipation
The difference between **energy** input and **output** as a result of transfer of **energy** between two points. Used for energy loss.
IEEE 1968

energy loss
Use energy dissipation

equatorial orbits
Inclined **orbits** with an **inclination** of zero degrees. The plane of an equatorial orbit contains the equator of the primary body.
IEEE 1968

• **erosion**
Progressive loss of original material from a solid surface due to mechanical interaction between that surface and a fluid, a multicomponent fluid, or impinging liquid or solid **particles**. Used for scars (geology). *ASTM (G 76, G-2) 1968*

error correcting codes
Codes in which each telegraph or data signal conforms to specific rules of construction so that departures from this construction in the received signals can be automatically detected, and permits the automatic **correction**, at the received terminal, of some or all of the errors. Note: Such codes require more signal elements than are necessary to convey the basic **information**. *IEEE 1974*

error detection codes
Codes in which each expression conforms to specific rules of construction, so that if certain errors occur in an expression the resulting expression will not conform to the rules of construction and thus the presence of errors is detected. Note: Such codes require more signal elements than are necessary to convey the fundamental **information**. *IEEE 1968*

• **escarpments**
Long more or less continuous cliffs or relatively steep slopes facing in one general direction, breaking the continuity of the land by separating two level or gently sloping surfaces, and produced by **erosion** or by faulting. Used for scarps. *AGI 1972*

• **eutrophication**
The process by which waters become more eutrophic; especially the artificial or natural enrichment of a lake by an influx of nutrients required for the growth of **aquatic plants** such as **algae** that are vital for fish and animal life. *AGI 1973*

• **evaporation**

The physical process by which a liquid or solid is transformed into the gaseous state; the opposite of **condensation**. *SP-7 1968*

• **evapotranspiration**
Loss of **water** from a land area through **transpiration** of plants and **evaporation** from the soil and surface-water bodies. Also, the volume of **water** lost through evapotranspiration. *AGI 1973*

• **excavation**
The act or process of removing soil and/or rock materials from one location and transporting them to another. It includes digging, blasting, breaking, loading, and hauling, either at the surface or underground. Also, a pit, cavity, hole, or other uncovered cutting produced by excavation or the material dug out in making a channel or cavity. Used for ditching (excavation) *AGI 1968*

• **expert systems**
Computer programs that manipulate symbolic **information** to produce the same results as human experts would. They deal with uncertain data and make decisions on that data. Input and design relies on human experts. Used for knowlege based systems. *1983*

• **exploding conductor circuits**
Use circuits

• **exploration**
The search for deposits of useful **minerals** or **fossil fuels**; prospecting, including under the oceans. It may include geologic reconaissance, e.g. **remote sensing**, photogeology, geophysical and geochemical methods, and both surface and underground invesigations. Used for discovering and prospecting. *AGI 1968*

F

• **fans (landforms)**
Gently sloping, fan-shaped masses of detritus forming sections of very low shaped **cones** commonly at places where there is a notable decrease in gradient; specifically alluvial fans. Also fan-shaped masses of congealed **lava** that formed on steep slopes by the continual changing direction of **flow**. Used for bajadas. *AGI 1975*

FDMA
Use frequency division multiple access

feature extraction
Use pattern recognition

field aligned currents
Electric currents aligned along **magnetic fields**. *1988*

finite-state machines
Use Turing machines

• **flats (landforms)**
A general term for level or nearly level surfaces or small areas of land marked by little or no relief such as plains. Also, nearly level regions that visibly display lower relief than their surroundings. Used for adobe flats and salt flats. *AGI 1974*

• **flood control**
The prevention or reduction of damage caused by flooding, as by containing **water** in reservoirs removed from areas where it would do damage, improving channel capacity to convey **water** past or through critical areas with the least amount of damage, and diverting excess **water** into bypasses or floodways. *AGI 1976*

• **flood plains**
The surfaces or strips of relatively smooth land adjacent to river channels, constructed by the present rivers in their existing regimens and covered with **water** when the rivers overflows. *AGI 1973*

• **floods**
Rising bodies of **water** (as in **streams**, **lakes**, or seas, or behind dams) that overtop their natural or artificial confines and that cover land not normally underwater. Especially, any relatively high streamflows that overflow their banks in any reach of the stream, or that are measured by gage **height** of discharge quantity. *AGI 1968*

• **fluid transpiration**
Use transpiration

• **folds (geology)**
Curves or bends of a planar structure such as rock strata, bedding planes, foliation, or cleavage. Folds are usually a product of **deformation**, although their definition is decriptive and not genetic and may include primary structures. Used for nappes. *AGI 1973*

• **fossil fuels**
A general term for any hydrocarbons that may be used for fuel; chiefly petroleum, natural gas, and **coal**. *AGI 1974*

• **free electrons**
Electrons which are not bound to an atom. *SP-7 1968*

frequency division multiple access
A method of providing **multiple access** to **communication satellites** in which the transmissions from a particular earth station occupy a particular assigned frequency band. In the satellite the signals are simultaneously amplified and transposed to a different frequency band and retransmitted. The earth station identifies its receiving channel according to its assigned frequency band in the satellite signal. Used for FDMA. *IEEE 1979*

• **frequency ranges**
Specifically designated parts of the frequency spectrum. *IEEE 1968*

• **frontal areas (meteorology)**
Use fronts (meteorology)

• **fronts (meteorology)**
The contacts at the Earth's surface between two different **air masses** commonly cold and warm, that generally move in an easterly direction. Used for frontal areas (meteorology) and weather fronts. *AGI 1968*

G

• **gaps (geology)**
Ravines or gorges cut deeply through a mountain ridge, or between hills or mountains. Used for cols and passes. *AGI 1975*

gas discharge counters
Use gas discharge tubes

gas discharge tubes
Evacuated enclosures containing a gas at low pressure that permits the passage of electricity through the gas upon application of sufficient voltage. Note: The tubes are usually provided with metal **electrodes**, but one form permits an electrodeless discharge with induced voltage. Used for discharge tubes and gas discharge counters. *IEEE 1968*

• **geoastrophysics**
Use astrophysics

• **geoastrophysics**
Use geophysics

• **geochemistry**
The study of the distribution of the amounts of the chemical elements in **minerals**, ores, **rocks**, soils, **water**, and the atmosphere. Also, the study of the **circulation** of the elements in nature, on the basis of the properties of the atom and **ions**. A major concern of geochemistry is the synoptic evaluation of the **abundance** of the elements of the Earth's crust and in major classes of **rocks** and **minerals**. *AGI 1968*

• **geochronology**
The study of time in relationship to the history of the Earth, especially by the absolute age determination and relative dating systems developed for this purpose. *AGI 1968*

• **geodesy**
The science which deals mathematically with the size and shape of the earth, and the earth's external gravity field, and with surveys of such **precision** that overall size and shape of the earth must be taken into consideration. Used for earth figure, earth shape, and Izsak ellipsoid. *SP-7 1968*

• **Geodimeters**
Trade name of electronic-optical devices that measure ground distances precisely by electronic timing and phase comparison of modulated light waves that travel from a master unit to a reflector and return to a light-sensitive tube where an electric current is set up. They are normally used at night and are effective with first-order **accuracy** up to distances or 5-40 km (3-25 miles). The term is derived from GEO detic DI stance METER. *AGI 1968*

• **geoelectricity**
The Earth's natural electric fields and phenomena. It is closely related to **geomagnetism**. *AGI 1968*

• **geomagnetic field**
Use geomagnetism

• **geomagnetism**
The magnetic phenomena, collectively considered, exhibited by the earth and its atmosphere and by extension the magnetic phenomena in interplanetary space. The study of the magnetic field of the earth. Used for geomagnetic field and terrestrial magnetism. *SP-7 1968*

• **geophysics**
The physics of the earth and it environment, i.e., earth, air, and (by extension) space. Classically, geophysics is concerned with the nature of and physical occurrences at and below the surface of the earth including, therefore, geology, oceanography, **geodesy**, **seismology**, and hydrology. The trend is to extend the scope of geophysics to include **meteorology**, **geomagnetism**, **astrophysics**, and other sciences concerned with the physical nature of the universe. Used for geoastrophysics. *SP-7 1968*

• **Glauert coefficient**
Use Mach number

• **gypsum**
The mineral consisting primarily of fully hydrated calcium sulfate (calcium sulfate dihydrate). *ASTM (C 11, C-11) 1968*

gyrocompasses
Compasses consisting of a continuously driven Foucault gyroscope whose supporting ring normally confines the spinning axis to a horizontal plane, so that the earth's rotation causes the spining axis to assume a position in a plane passing through the earth's axis, and thus to point to true north. *IEEE 1968*

H

• **hard coal**
Use anthracite

• **heat treatment**
Heating and cooling a solid metal or alloy in such a way as to obtain desired conditions or properties. *SP-7 1968*

• **hinge moments**
Use torque

hydromagnetic waves
Use magnetohydrodynamic waves

I

impulse generators
Standard reference sources of broadband impulse **energy**. *IEEE 1968*

incoherent scattering
The phenomena of generating waves with random variations in phase, amplitude, **polarization**, and direction of **propagation** when an incident wave encounters matter. *IEEE 1968*

indexes (documentation)
Ordered reference lists of contents of a file or document, together with keys or reference notations for identification or location of those contents. *IEEE 1968*

induction heating
The generation of **heat** in any conducting material by means of magnetic flux-induced currents. *IEEE 1968*

induction motors
AC **motors** in which the primary winding on one member (usually the stator) is connected to the power source and a polyphase secondary winding or a squirrel-cage secondary winding on the other member (usually the rotor) carries induced current. *IEEE 1971*

• ***inliers (landforms)***
Areas or groups of **rocks** surrounded by **rocks** of younger age. *AGI 1981*

• **inshore zones**
Use beaches

• **ions**
Charged atoms or molecularly bound groups of atoms; sometimes also **free electrons** or other charged subatomic particles. In **atmospheric electricity**, any of several types of electrically charged submicroscopic particles normally found in the atmosphere. Atmospheric ions are of two principal types, small ions and large ions, although a class of intermediate ions has occasionally been reported. In chemistry, atoms or specific groupings of atoms which have gained or lost one or more electrons, as the chloride ion or ammonium ion. Such ions exist in aqueous solutions and in certain crystal structures. *SP-7 1968*

• **islands**
Tracts of land smaller than a continent, surrounded by the **water** of oceans, seas, **lakes**, or **streams**. The term has been loosely applied to land-tied and submerged areas, and to land cut off on two or more sides by **water**, such as **peninsulas**. *AGI 1968*

• **Izsak ellipsoid**
Use geodesy

J

• **jetties**
Use breakwaters

K

• **klippen**
Use outliers (landforms)

• **knowledge based systems**
Use expert systems

L

• **lakes**
Inland bodies of standing **water** occupying depressions in the Earth's surface, generally of appreciable size (larger than a pond) and too deep to permit vegetation (excluding sub aqueous vegetation) to take root completely across the expanse of **water**; the **water** may be fresh or saline. The term includes expanded parts of rivers, reservoirs behind dams, or lake basins intermittently or formerly covered by **water**. *AGI 1968*

• **laminated materials**
Use laminates

• **laminates**
Products made by **bonding** together two or more layers of material or materials. Used for laminated materials, laminations, and multilayer structures. *ASTM (C 582, C-3) 1968*

• **laminations**
Use laminates

• **lava**
A general term for a molten extrusive; also, for the rock that is solidified from it. *DOE 1968*

LED (diodes)
Use light emitting diodes

light emitting diodes
Pn junction semiconductor devices that emit incoherent optical radiation when biased in the forward direction. Used for LED (diodes). *IEEE 1971*

• **luster**
The appearance characteristic of a specimen due to pronounced changes in **intensity** of light reflected from elemental areas of the specimen when the angle of illumination or view is changed. Used for dullness. *ASTM (E 284, E-12) 1968*

M

• **Mach number**
A number expressing the ratio of the speed of a body or a point on a body with respect to the surrounding **air** or other fluid, or other fluid, or the speed of a flow, to the speed of sound in the medium; the speed represented by this number. Used for critical Mach number and Glauert coefficient. *SP-7 1968*

• **macromolecules**
Use molecules

• **magnetic field intensity**
Use magnetic flux

• **magnetic fields**
Regions of space wherein magnetic dipoles would experience a magnetic **force** or **torque**; often represented as the geometric array of the imaginary magnetic lines of **force** that exist in relation to **magnetic poles**. *SP-7 1968*

• **magnetic flux**
The magnetic **force** excerted on an imaginary unit magnetic pole placed at any specified point of space. It is a vector quantity. Its direction is taken as the direction toward which a north magnetic pole would tend to move under the influence of the field. If the **force** is measured in dynes and the unit pole is a cgs unit pole, the field intensity is given in oersteds. Used for magnetic field intensity. *SP-7 1968*

• **magnetic poles**
Either of the two places on the surface of the earth where the magnetic dip is 90 deg., that in the Northern Hemisphere (at, approximately, **latitude** 73 deg. 8 N, **longitude** 101 deg. W in 1955) being designated north magnetic pole, and that in the Southern Hemisphere (at, approximately, **latitude**, 68 deg. S, **longitude** 144 deg. E in 1955) being designated south magnetic pole. Either of those two points of a magnet where the magnetic **force** is the greatest. In magnetic theory, a fictitious entity analogous to a unit charge of electrostatic theory. In nature only **dipoles**, not isolate magnetic poles exist. *SP-7 1968*

magnetohydrodynamic waves
Low frequency waves in an electrically highly conducting fluid (such as a plasma) permeated by static **magnetic fields**. The restoring forces of the waves are, in general, the combination of a magnetic **tensile stress** along the magnetic field lines and the comprehensive stress between the field lines and the fluid pressure. Used for Alfven waves, hydromagnetic waves, and plasma sound waves. *IEEE 1968*

• **man tended free flyers**
Intermittently manned spacecraft or platforms designed primarily to carry out experiments in **reduced gravity** and life science

research. They also serve as annexes or **components** of space stations. Used for MTTF (space station). *1989*

mass drivers
Electromagnetic devices for the linear acceleration of projectiles or **payloads**. Applications include orbital insertion and transfer, propulsion systems, and hypervelocity accelerators. *1978*

matter-antimatter propulsion
Spacecraft propulsion by use of matter-antimatter annihilation reactions. *1988*

• **microphones**
Electroacoustic transducers which receive acoustic signals and deliver corresponding electric signals. *SP-7 1968*

• **minerals**
Naturally occuring inorganic elements or compounds having an orderly internal structure and characteristic chemical compositions, crystal forms, and physical properties. *AGI 1968*

minimization
Use optimization

mixing layers (fluids)
Fluid layers in which multicomponent mixing occurs. *1988*

• **molecular flow**
The flow of gas through a duct under conditions such that the **mean free path** is greater than the largest dimension of a transverse section of the duct. *SP-7 1968*

• **molecular weight**
The **weight** of a given molecule expressed in atomic **weight** units. *SP-7 1968*

• **molecules**
Aggragates of two or more atoms of a substance that exists as a unit. Used for macromolecules. *SP-7 1968*

MS DOS (operating system)
Use disk operating system (DOS)

• **MTFF (space station)**
Use man tended free flyers

• **multilayer structures**
Use laminates

• **multiple access**
The allocation of communication system resources (output) among multiple users by means of power, bandwidth, and power assignment singly or in combination. *1979*

N

• **nappes**
Use folds (geology)

• **navigation**
The practice or art of directing the movement of a craft from one point to another. Navigation usually implies the presence of a human, a navigator, aboard the craft. *SP-7 1968*

O

• **optical depth**
Use optical thickness

• **optical thickness**
Specifically, in calculations of the transfer of radiant energy, the **mass** of a given absorbing or emitting material lying in a vertical column of unit cross sectional area and extending between two specific levels. Used for optical depth. *SP-7 1968*

optimization
The procedure used in the design of a system to maximize or minimize some performance index. May entail the selection of a component, a principle of operation, or a technique. *IEEE 1968*

optoelectronic devices
Electronic devices combining optic and electric ports. *IEEE 1968*

• **ores**
Use minerals

• **outliers (landforms)**
Areas or groups of **rocks** surrounded by **rocks** of older age. Used for klippen. *AGI 1977*

P

parametric amplifiers
Inverting parametric devices used to amplify a signal without frequency translation from input to **output**. Used for parametric oscillators and reactance amplifiers. *IEEE 1968*

parametric oscillations
Use parametric amplifiers

• **passes**
Use gaps (geology)

pattern recognition
The identification of shapes, forms and configurations by automatic means. *IEEE 1968*

payload stations
The locations in the Space Shuttles' fight decks and cargo bay at which **payloads** are mounted. *1977*

• **payloads**
Originally, the revenue producing portions of an aircraft's load, e.g., passengers, cargo, and mail. By extension, that which an aircraft, rocket, or **spacecraft** carries over and above which is necessary for the operation of the vehicle for its **flight**. *SP-7 1968*

• **peninsulas**
Elongated bodies or stretches of land nearly surrounded by **water** and connected with a larger land area, usually by a neck or an isthmus. The term is derived from the Latin 'paeninsula' 'almost island'. *AGI 1968*

• **perveance**
The quotient of the space-charge-limited cathode current by the three-halves power of the anode voltage in a diode. Note: Perveance is the constant G appearing in the Child-Langmuir-Schottky equation. *IEEE 1968*

Petri nets
Abstract, formal models of the information flow in systems with discrete sequential or parallel events. The major use has been the modeling of hardware systems and software concepts of computers. *1979*

• **phase modulation**
Angle **modulation** in which the angle of a sine wave carrier is caused to depart from the carrier angle by an amount proportional to the instantaneous value of the **modulation** wave. Combinations of phase and frequency **modulation** are commonly referred to as frequency **modulation**. *SP-7 1968*

phase shift keying
The form of **phase modulation** in which the modulating function shifts the instantaneous phase of the modulated wave among predetermined discrete values. *IEEE 1968*

photocathodes
Electrodes used for obtaining a **photoelectric emission** when irridated. Used for photoelectric cathodes. *IEEE 1968*

photoconductivity
The **conductivity** increase exhibited by some nonmetallic materials, resulting from the free carriers generated when photon **energy** is absorbed in electronic transitions. The rate at which free carriers are generated, the mobility of the carriers, and the length of **time** they persist in conducting states (their lifetime) are some of the factors that determine the amount of **conductivity** change. Used for photoresistivity *IEEE 1968*

• **photocurrents**
Use photoelectric emission

photodiodes
Diodes designed to produce photocurrent by absorbing light. Photodiodes are used for the conversion of optical power to electrical power. *IEEE 1968*

photoelectric cathodes
Use photocathodes

• **photoelectric emission**
The emission of electrons from atoms or **molecules**. Used for photocurrents, photoemission, and photoemissivity.
ASTM (E 673, E-42) 1968

• **photoemission**
Use photoelectric emission

• **photoemissivity**
Use photoelectric emission

photographic emulsions
The light-sensitive **coatings** on photographic film consisting usually of silver halide. *IEEE 1968*

photoresistivity
Use photoconductivity

photovoltaic effect
The production of a voltage difference across a pn junction resulting from the **absorption** of photon **energy**. The voltage difference is caused by the internal drift of holes and electrons. *IEEE 1968*

piezoelectric transducers
Transducers that depend for their operation on the interaction between electric charge and the **deformation** of certain materials having piezoelectric properties. Note: Some crystals and specially processed **ceramics** have piezoelectric properties. *IEEE 1968*

• **piezoelectricity**
The property exhibited by some asymetrical crystalline materials which when subjected to strain in suitable directions develop **polarization** proportional to the strain. *SP-7 1968*

plan position indicators
Display devices on which target blips are shown in plan position, thus forming a map-like display, with radial distance from the center representing range and with the angle of the radius vector representing **azimuth** angle. Used for PPI (position indicators)

plasma sound waves
Use magnetohydrodynamic waves

• **plastics**
Materials that contain as an essential ingredient one or more organic polymeric substances of large **molecular weight**, are solid in their finished state, and at some stage in their manufacture or processing into finished articles can be shaped by **flow**.
ASTM (F 412, F-17; D 883, D-20) 1968

PPI (position indicators)
Use plan position indicators

processors (computers)
Use central processing units

• **prospecting**
Use exploration

R

• **radar targets**
Objects which reflect a sufficient amount of a **radar** signal to produce an echo signal on the **radar** screen. *SP-7 1968*

• **radio frequency radiation**
Use radio waves

• **radio propagation**
Use radio transmission

radio sources (astronomy)
Celestial objects that emit **radio waves**. *IEEE 1968*

• **radio transmission**
The **transmission** of signals by means of radiated electromagnetic waves other than light or **heat** waves. Used for radio propagation and radio signal propagation. *IEEE 1968*

radio transmitters
Devices for producing radio-frequency power, for purposes of radio transmission. *IEEE 1968*

• **radio waves**
Waves produced by oscillation of an electric charge at a frequency useful for radio communication. Used for radio frequency radiation. *SP-7 1968*

reactance amplifiers
Use parametric amplifiers

• **receivers**
Initial **components** or sensing elements of measuring systems. For example, the receiver of a thermoelectric thermometer is the measuring thermocouple. Instruments used to detect the presence and to determine the **information** carried by **electromagnetic radiation**. Receivers include **circuits** designed to detect, amplify, rectify, and shape the incoming radio frequency signals received at the antenna in such a manner that the **information** containing component of the received **energy** can be delivered to the desired indicating of recording equipment. Used for receiving systems. *SP-7 1968*

• **receiving systems**
Use receivers

reduction (mathematics)
Use optimization

• **reefs**
Chains of **rocks**, sand ridges, or coral at or near the surface of **water**. *DOE 1973*

• **reflectance**
The ratio of the radiant **flux** reflected by a body to that incident upon it. Used for reflection coefficient and reflectivity. *SP-7 1968*

• **reflection**
The process whereby a surface of **discontinuity** turns back a portion of the incident **radiation** into the medium through which the **radiation** approached. *SP-7 1968*

• **reflection coefficient**
Use reflectance

• **reflectivity**
Use reflectance

reinforced plastics
Plastics with some strength properties greatly superior to those of the base resin, resulting from the presence of high-strength fillers imbedded in the composition. Note: The reinforcing fillers are usually fibers, fabrics, or mats made of fibers. The plastic **laminates** are the most common and strongest. *IEEE 1968*

reluctance
The ratio of the magnetomotive **force** to the **magnetic flux** through any cross section of the magnetic circuit. *IEEE 1968*

reluctivity
Use reluctance

• **remote sensing**
The collection of **information** about an object by a recording device that is not in physical contact with it. The term is usually restricted to mean methods that record reflected of radiated electromagnetic **energy**, rather than methods that involve significant penetration into the Earth. The technique employs such devices as cameras, infrared detectors, microwave frequency **receivers**, and **radar** systems. *AGI 1980*

resistivity
Use electrical resistivity

• **resonators**
In radio and **radar** applications, **circuits** which will resonate at a given frequency, or over a range of **frequencies**, when properly excited. *SP-7 1968*

• **responders**
Use transponders

riblets
Longitudinal striations forming V-shaped grooves on aerodynamic and hydrodynamic surfaces. The riblet devices act to reduce large-scale disturbances near the boundary layer. These grooves are dimensional on the order of the wall **vortices** and turbulent dimensions. *1988*

• **rocks**
Naturally formed aggregates of mineral matter occurring in large masses or fragments. Used for stones (rocks). *ASTM (D 653, D-18) 1968*

• **rotational flow**
Use vortices

S

• **salt flats**
Use flats (landforms)

• **scarps**
Use escarpments

• **scars (geology)**
Use erosion

• **sea walls**
Use breakwaters

secondary radar
A **radar** technique or mode of operation in which the return signals are obtained from **beacons**, **transponders**, or repeaters carried by the targets, contrasted with primary **radar** in which the return signals are obtained by **reflection** from the targets. *IEEE 1968*

• **sediments**
Solid fragmental materials that originate from **weathering** of **rocks** and are transported or deposited by **air**, **water**, or ice, or that accumulate by other natural agents, such as chemical precipitation from solution or secretion by organisms, and that form in layers on the Earth's surface at ordinary temperatures in a loose, unconsolidated form; e.g. sand, gravel, silt, mud, till, loess, and **alluvium**. *AGI 1968*

• **seismology**
The study of earthquakes, by extension, the structure of the interior of the Earth via both natural and artificially generated seismic signals. *DOE 1968*

• **shunts**
Use circuits

• **silts**
Use sediments

• **SOHO Mission**
One of the joint NASA/ESA missions comprising the International Solar Terrestrial Program. The SOHO Mission will investigate the physical processes in the solar corona and **solar wind** and the structure and **dynamics** of the solar interior. *1989*

• **Solar and Heliospheric Observatory**
Use SOHO Mission

• **solar azimuth**
Use azimuth

• **solar plasma (radiation)**
Use solar wind

• **solar wind**
Streams of plasma flowing approximately radially outward from the **sun**. Used for solar plasma (radiation). *SP-7 1968*

• **stellar Doppler shift**
Use Doppler effect

• **stones (rocks)**
Use rocks

stratospheric warming
A temperature rise in the global stratosphere. *1988*

• **streams**
Bodies of flowing **water**, great or small, contained within channels as well as uncontained fluids such as **air**. *DOE 1968*

• **subcircuits**
Use circuits

T

• **tensile stress**
Normal stress tending to lengthen the body in the direction in which it acts. *ASTM (D 653, D-18) 1968*

• **terrestrial magnetism**
Use geomagnetism

• **thermocouples**
Devices which convert thermal energy directly into electrical energy. In its basic form it consists of two dissimilar metallic electrical **conductors** connected in a closed loop. Each junction forms a thermocouple. *SP-7 1968*

• **tombolos**
Use bars (landforms)

• **torque**
About an axis, the product of a **force** and the distance of its line of action from the axis. Used for hinge moments. *SP-7 1968*

transconductance
The real part of the transadmittance. Note: Transconductance is, as most commonly used, the interelectrode transconductance between the control grid and the plate. At low frequencies, transconductance is the slope of the control-grid-to-plate transfer characteristic. *IEEE 1986*

• **transducers**
Devices capable of being actuated by **energy** from one or more other **transmission** systems or media and of supplying related **energy** to one or more other transmiission systems or media as **microphones** or **thermocouples**. *SP-7 1968*

• **transmittance**
The ratio of the radiant **flux** transmitted by a medium or a body to the incident **flux**. *SP-7 1968*

• **transpiration**
The passage of gas or liquid through a porous solid (usually under conditions of **molecular flow**). Used for fluid transpiration. *SP-7 1968*

• **transponders**
Combined receiver and transmitter whose funcion is to transmit signals automatically when triggered by a interrogator. Used for responders. *SP-7 1968*

trapped vortices
Air flow in rotary **motion** but trapped relative to leading edge vortex separation, which increases not only **lift** but also **drag**. The trapped vortices result in **thrust** and reduced **drag**. Used for vortex traps. *1980*

trend analysis
A management tool for evaluating variation in data with the ultimate objective of forcasting future events based upon an examination of past results. *1989*

trigger circuits
Circuits that have two conditions of stability, with means for passing from one to the other when certain conditions are satisfied, either spontaneously or through application of an external stimulus. *IEEE 1968*

Turing machines
Mathematical models of devices that change their internal states and read from, write on, and move potentially infinite tapes, all in accordance with their present states, thereby constituting models for computerlike behavior. Invented in the 1930's, they are named after their inventor, A.M. Turing. Used for finite-state machines. *IEEE 1968*

V

• **vacuum**
A given space filled with gas at pressures below **atmospheric pressure**. Used for aspiration. *SP-7 1968*

• **vortex columns**
Use vortices

• **vortex disturbances**
Use vortices

• **vortex flow**
Use vortices

vortex traps
Use trapped vortices

• **vortex tubes**
Use vortices

• **vortices**
In fluids, circulations drawing their **energy** from flows of much larger scale and brought about by **pressure** irregularities. Used for eddies, rotational flow, vortex columns, vortex disturbances, vortex flow, and vortex tubes. *SP-7 1968*

W

• **water**
Dihydrogen oxide (molecular formula H20). The word is used ambiguously to refer to the chemical compound in general and to its liquid phase; when the former is meant, the term water substance is often used. *SP-7 1968*

wattmeters
Instruments for measuring the magnitude of the active power in an electric circuit. They are provided with a scale usually graduated in either watts, kilowatts, or megawatts. If the scale is graduated in kilowatts or megawatts, the instruments are usually designated as kilowattmeters or megawattmeters. *IEEE 1968*

• **wave radiation**
Use electromagnetic radiation

• **weather fronts**
Use fronts (meteorology)

• **weathering**
The process of disintegration and decomposition as a consequence of exposure to the atmosphere, to chemical action, and to the action of frost **water** and **heat**. *ASTM (D 653, D-18) 1968*

whip antennas
Thin flexible monopole antennas. *IEEE 1968*

whispering gallery modes
Electromagnetic (or elastic) waves that differ in frequency by more than an order of magnitude. *1988*

NASA THESAURUS SUPPLEMENT

PART 4
CHANGES

ACCESS CONTROL
Definition replaced by IEEE definition

CHAOS
Scope note deleted

COMMUTER AIRCRAFT
USE GENERAL AVIATION AIRCRAFT
Deleted, term made postable

COMMUTER AIRCRAFT
USE PASSENGER AIRCRAFT
Deleted, term made postable

DOPPLER RADAR
Definition replaced by IEEE definition

LEARNING MACHINES
Transferred to MACHINE LEARNING

MAGNETOHYDRODYNAMIC WAVES
Definition replaced by IEEE definition

MASS DRIVERS (PAYLOAD DELIVERY)
Transferred to MASS DRIVERS

SATELLITE POWER TRANSMISSION (TO EARTH)
Transferred to SATELLITE POWER TRANSMISSION

TOLMEIN-SCHLICHTING WAVES
Transferred to TOLLMIEN-SCHLICHTING WAVES

TRAPPED VORTEXES
Transferred to TRAPPED VORTICES

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